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MR. DANA OF "THE SUN."

By Edward P. Mitchell.

KINGLAKE'S picture of a great editor —the most famous, if not the greatest, editor that English journalism has known—represents a man wrapped in midnight mystery. He is surrounded by sentinels, and perpetually absorbed during business hours in highly responsible thought. Part of the description of John T. Delane at work making the next morning's "Times" is worth quoting here, for it does not lack unconscious humor:

"From the moment of his entering the editor's room until four or five o'clock in the morning, the strain he had to put on his faculties must have been always great, and in stirring times almost prodigious. There were hours of night when he often had to decide—to decide, of course, with great swiftness—between two or more courses of action momentously different; when, besides, he must judge the appeals brought up to the paramount arbiter from all kinds of men, from all sorts of earthly tribunals; when despatches of moment, when telegrams fraught with grave tidings, when notes hastily scribbled in the Lords or Commons, were from time to time coming in to confirm or disturb, perhaps even to annul, former reckonings; and these, besides, were the hours when, on questions newly obtruding, yet so closely, so importunately present that they would have to be met before sunrise, he somehow must cause to spring up sudden essays, invectives, and arguments which only strong power of brain, with even much toil, could supply. For the delicate task any other than he would require to be in a state of tranquillity; would require to have ample time. But for him there are no such indulgences; he sees the hand of the clock growing more and more peremptory, and the time drawing nearer and nearer when his paper must, *must* be made up."

No trait is more characteristic of Mr. Dana than his intolerance of anything like humbug about his professional labors or methods. For almost fifty years he has managed to keep easily ahead of the clock, and to meet, without much personal consciousness of effort, all sorts of new and suddenly developed situations requiring swift decision as between courses of action momentously different. Mr. Dana's own imagination has never decorated with mystic importance this power to dispose rapidly and accurately of any newspaper question that comes up at any hour of the day or night. It has never seemed remarkable to him that he should be able to get out his paper morning after morning, and year after year, without any sense on his part of high pressure or extraordinary intellectual strain. He works hard, and, at the same time, it is quite true that he works easily; for he works with absolute tranquillity, undisturbed by that most common and most wearing attendant of mental effort, the mind's constant recognition of its own attitude towards the labor in which it is at the time engaged. Thus Mr. Dana has always been the master, and not the slave, of the immediate task. The external features of his journalism are simplicity, directness, common sense, and the entire absence of affectation. He would no more think of attempting to live up to Mr. Kinglake's ideal of a great, mysterious, and thought-burdened editor, than of putting on a conical hat and a black robe spangled with suns, moons, and stars, when about to receive a visitor to his editorial office in Nassau Street.

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I.

THE rather naked little corner room in the "Sun" Building in which Mr. Dana has sat almost daily for twenty-five years, is a surprise to many persons who see it for the first time. His genuine love of beautiful things, his disposition to acquire them if possible, and the extraordinary range and accuracy of his æsthetic appreciations, are so widely known that it is quite natural for those who do not understand him to expect to find his tastes reflected in his accustomed place of work. The room might be even barer than it is and yet serve Mr. Dana's purpose as well as if it were the Gallery of Apollo. On the other hand, if his chair and desk were established in the middle of the vastest and most sumptuous presence-chamber to be found anywhere, and amid a throng of curious and noisy onlookers, Mr. Dana would work on with the same tranquil efficiency, providing his pen did not splutter and the capacious waste-basket at his feet were emptied from time to time. The processes of his mind are neither stimulated nor intimidated by the surroundings. The accessories of luxurious professional habits are absent because they are superfluous to Mr. Dana; if he thought they would help him to make a better newspaper, they would all be there.

In the middle of the small room a desk-table of black walnut, of the Fulton Street style and the period of the first administration of Grant; a shabby little round table at the window, where Mr. Dana sits when the day is dark; one leather-covered chair, which does duty at either post, and two wooden chairs, both rickety, for visitors on errands of business or ceremony; on the desk a revolving case with a few dozen books of reference; an ink-pot and pen, not much used except in correcting manuscript or proofs, for Mr. Dana talks off to a stenographer his editorial articles and his correspondence, sometimes spending on the revision of the former twice as much time as was required for the dictation; a window seat filled with exchanges, marked here and there in blue pencil for the editor's eyes; a big pair of shears, and two or three extra pairs of spectacles in cache against an emergency: these few items constitute what is practically the whole objective equipment of the editor of "The Sun." The shears are probably the newest article of furniture in the list. They replaced, three or four years ago, another pair of unknown antiquity, besought and obtained by Eugene Field, and now occupying, alongside of Mr. Gladstone's axe, the place of honor in that poet's celebrated collection of edged instruments.

For the non-essentials, the little trapezoid-shaped room contains a third table, holding a file of the newspaper for a few weeks back, and a heap of new books which have passed review; an iron umbrella rack; on the floor a cheap Turkish rug; and a lounge covered with horse-hide, upon which Mr. Dana descends for a five minutes' nap perhaps five times a year. The adornments of the room are mostly accidental and insignificant. Ages ago somebody presented to Mr. Dana, with symbolic intent, a large stuffed owl. The bird of wisdom remains by inertia on top of the revolving book-case, just as it would have remained there had it been a stuffed cat or a statuette of Folly. Unnoticed and probably long ago forgotten by its proprietor, the owl solemnly boxes the compass as Mr. Dana swings the case, reaching in quick succession for his Bible, his Portuguese dictionary, his compendium of botanical terms, or his copy of the Democratic National Platform of 1892. On the mantelpiece is an ugly, feather-haired little totem figure from Alaska, which likewise keeps its place solely by possession. It stands between a photograph of Chester A. Arthur, whom Mr. Dana liked and admired as a man of the world, and the japanned calendar case which has shown him the time of year for the last quarter of a century. A dingy chromo-lithograph of Prince von Bismarck stands shoulder to shoulder with George, the Count Joannes.

The same mingling of sentiment and pure accident marks the rest of Mr. Dana's picture gallery. There is a large and excellent photograph of Horace Greeley, who is held in half-affectionate, half-humorous remembrance by his old associate in the management of "The Tribune." Another is of the late Justice Blatchford of the United States Supreme Court; it is the strong face of the fearless judge whose decision from the Federal bench in New York twenty years ago blocked the attempt to drag Mr. Dana before a servile little court in Washington, to be tried without a jury on a charge of criminal libel, at the time when "The Sun" was demolishing the District ring. Over the mantel is Abraham Lincoln. There are pictures of the four Harper brothers and of the five Appletons. Andrew Jackson is there twice, once in black and white, once in vivid colors. An inexpensive Thomas Jefferson faces the livelier Jackson. A framed diploma certifies that Mr. Dana was one of several gentlemen who presented to the State

CITY HALL PARK AND PRINTING HOUSE SQUARE.

a portrait in oils of Samuel J. Tilden. On different sides of the room are William T. Coleman, the organizer of the San Francisco Vigilantes, and a crude colored print of the Haifa colony at the foot of Mount Carmel, in Syria. Strangest of all in this singular collection is a photograph of a tall, lank, and superior-looking New England mill girl, issued as an advertisement by some Connecticut concern engaged in the manufacture of spool cotton. For a good many years the most available wall space in Mr. Dana's office was occupied by a huge pasteboard chart, showing elaborately, in deadly parallel columns, the differences in the laws of the several States of the Union respecting divorce. It was put there, and it remained there, serving no earthly purpose except to illustrate the editor's indifference as to his immediate surroundings, until it disappeared as mysteriously as it had come. Mr. Dana's divorce chart may have been stolen, but Superintendent Byrnes was not consulted.

Thus far in deference to Mr. McClure's respect for objective detail, as throwing light on character. After this hasty but approximately complete catalogue, it is needless to remark that the scheme of decoration carried out in the workroom of the foremost personage and most interesting figure in American journalism would indicate to nobody that the occupant of the room knew Manet from Monet, or old Persian lustre from Gubbio.

From the windows of his room in the dwarf "Sun" Building, the old Tammany Hall in Park Row, Mr. Dana can look out and up to the sky-high edifices built all around him by his esteemed contemporaries during recent years. He is perfectly content to work on, as he has worked in this same block between Spruce Street and Frankfort almost continuously since February, 1846, in the old-fashioned way, as far as externals are concerned. The absence of ostentation that distinguishes his professional methods and habits extends to the whole establishment. While the "Sun" Building, as a workshop, lacks no modern appliance or mechanical improvement that contributes to the production of a great daily newspaper, there are few journals less impressively housed, even in the smaller cities of the United States.

II.

INTO the corner room described, there swings nearly every morning in the year a man of seventy-five, looking fifteen years younger; largely built, square-framed, with a step as firm as a sea captain's; vigorous, sometimes to abruptness, in his bodily movements, but deliberate and gentle in his speech; dressed always in such a way that his clothes seem to belong to him and not he to them; with strong brown hands, rather large, which do not tremble as they hold book or paper; and a countenance, familiar to most Americans through portraits or caricatures, whose marked features the caricaturists distort in various whimsical ways without ever succeeding in making the face seem either ridiculous or ignoble. Mr. Dana's full beard is trimmed more closely than in former years. It ranks as snow white only by courtesy; the last strongholds of the pigment are not yet conquered.

The impression which Mr. Dana makes upon those who come into contact with him personally, for the first time or the fortieth, is that of vigorous and sympathetic good will, both desirous and capable of pleasing. He is frank and engaging in conversation, and the wonderful range of his intellectual interests makes him equally ready to learn or to communicate. Men who seek him merely to measure their wits against his for a purpose, often go away charmed with their reception and well satisfied with results until they begin to reckon at a distance what has actually been accomplished by the interview. If shrewd kindness beams on the stranger through one of the two lenses of his gold-bowed spectacles, kind shrewdness is alert behind the other glass. He has learned how to say No when necessary, and even to say it in italics; but he has never learned how to say an inconsiderate thing.

A very observant Frenchman once remarked about Mr. Dana: "He is one of the few men over sixty I have known who remember the way to blush. The only times I have seen Mr. Dana blush have been when something discourteous was said or done in his presence, too trivial to call for direct rebuke."

The physical vitality which has served Mr. Dana so well through life that he has never experienced a single hour of serious illness, and which brings him to his desk now at seventy-five with as keen a joy for the day's work and the day's fun as that of any youth under his command, is the most obvious and the least important factor. It accounts, perhaps, for the occasional blush which the French gentleman noted, for the heartiness of his hand-grasp, and in a measure for the general cheerfulness of the view he habitually takes of life; but inveterate health is by no means a possession peculiar to the editor of "The Sun." Nor is the analysis which goes into the questions of a man's diet and hours of sleep, in order to ascertain the secret of his genius, likely to be rewarding in its results. Mr. Dana uses no tobacco, but that is not the reason why he is superior to petulance and never frets himself under any circumstances, whatever his mood. He knows wine, and respects it and himself; but that is not the reason why he knows at a glance good poetry from bad, even if the good be disguised in cramped handwriting and words misspelled, while the bad is displayed in typography beautiful to see. He prefers the mushroom to mush and milk, being both a connoisseur and a cultivator of the former; but that is not the reason why, as a journalist, his perception of the interesting, the unexpected, the refreshing, has not been dulled by fifty years' exercise. First, a natural, God-given faculty for the acquisition, the discrimination, and the dissemination of facts and ideas; secondly, a life uncommonly rich and varied in its acquaintance with men and its experience of affairs: these are the lines of inquiry to be pursued by any one who is curious for an explanation of the success of Mr. Dana's career, and the incalculable influence of his mind upon the general progress and special methods of American journalism during the long period of his activity in that profession.

Mr. Dana was born with a voracious intellectual appetite, which has remained healthy and insatiate all of his life. He shrinks at nothing short of actual dulness, or literary deformity so marked as to be repulsive. He is a tireless reader of books, magazines, and journals in many languages. Whether print or manuscript comes under his eyes, he takes in the ideas seemingly by whole paragraphs, rather than by words, lines, or even sentences. Unlike most other very rapid readers that I have known, he does not merely sample the page or the chapter or the book. A glance through his glasses seems to establish a circuit which at once puts his brain in possession not only of the essential facts, but also of any refinement of style that may be there, or any novel or felicitous verbal formula, no matter how inconspicuous. When he

closes the book or throws aside the newspaper, the probability is small that he has missed anything worth having. This process of acquisition has been going on without a break and with constantly increasing speed ever since his early boyhood. It is supported by a memory which selects with discrimination and then retains with tenacity.

III.

MR. DANA was two years old when he left the town of his birth, Hinsdale, New Hampshire. His childhood was spent at Gaines, on the Erie Canal, in Orleans County, New York State, in Buffalo, and at Guildhall, Vermont. One of his earliest recollections is of running away from home in Buffalo at the age of three, and going down to the lake to see the first steamboat come in. He got himself very muddy, and on his return his mother tied him to the well-post with her garter.

At Gaines he attended the district school during two winter sessions, and picked up what he could find, openly or by stratagem, in the limited literature within his reach. "The first book I remember reading," he says, "was Miss Porter's 'Thaddeus of Warsaw.' That romance made an extraordinary impression on my mind. I must have been five years old, certainly not more than six. 'Thaddeus' was not considered as a suitable book for me; it was kept stowed away in a drawer of my mother's bureau. I discovered it there, and read it on foot from beginning to end in short installments, standing over the open book in the open drawer, crying hard at the pathetic passages, but always ready to push the drawer to and run if I heard anybody coming. It seemed to me to be a great story."

The favorite books of Mr. Dana's boyhood were "Pilgrim's Progress," "Robinson Crusoe," and, later, "Ivanhoe." He read them over and over again until he almost knew them by heart. When he was eleven he returned to Buffalo to be a clerk in his uncle's dry goods and notions store. "I was pretty good," he says, "at selling stuff, and quick at figures and in making change." For seven years he clerked it, occupying his scant leisure with miscellaneous reading, but touching no school books until he was almost nineteen. His uncle failed in business in 1837, and the future of Mr. Dana's mercantile career became clouded. He remained in Buffalo for two years longer, helping to settle up the affairs of the establishment, and meanwhile preparing himself for college. "I was just about nineteen when I tackled the Latin grammar and *musa, musæ, musæ, musam.* I found the utmost difficulty in remembering the paradigms. Nothing but the steadiest determination kept my nose to that book."

Two winter terms in a country district school and two years in college consti-

THE APPROACH TO DOSORIS ISLAND, MR. DANA'S SUMMER HOME.

tuted the whole of Mr. Dana's experience of any system of education in which he himself was not master as well as pupil. He entered Harvard in 1839 at the age of twenty. His eyesight was seriously affected by too close application, and he was obliged to leave his class at the end of the sophomore year. Mr. Dana would have been graduated in 1843. Although he was prevented from completing the course, the university afterward gave him his degree. His name appears in the triennial catalogue, and last year he met his old classmates in Boston to celebrate the fiftieth anniversary of the class of 1843.

While at Cambridge Mr. Dana was a hard student. He so far overcame the first repugnance with which paradigms of declension or conjugation inspired him, as to conceive a marked and genuine fondness for the acquisition of other languages than English, living and dead. No year has passed during his busy life without adding to his stock of languages, or increasing his familiarity with some of those which he has already partially acquired. Most spoken languages except the Slavonic and the Oriental are at his command; and he has but just now started on Russian. He is restless so long as something which he really wants to know remains behind a curtain of words which he does not comprehend. An accidental circumstance, a chance reference, impatience with an obviously imperfect translation, may direct his attention to some tongue or some dialect which he has not yet checked off. Then he turns to with grammar and dictionary, and is not satisfied until his mastery of that particular medium of thought is sufficient for practical purposes. Many visitors to the "Sun" office have found Mr. Dana bending over text-book and lexicon, and working away with the energy of a freshman who has only half an hour before Greek recitation. Such visitors have seen the editor in some of his happiest moments.

Curiosity concerning the Norwegian-Icelandic literature led Mr. Dana, years ago, to a systematic and persistent study of the old Norse. That and its surviving Scandinavian kindred have long been a favorite occupation with him. He reads the Sagas and Henrik Ibsen's last play with equal readiness, although not with equal reverence. In the whole range of classic literature, next to the Bible, for which his admiration is profound and unaffected, the "Divine Comedy" perhaps holds the first place in his esteem. He began to read Dante in the original in 1862, taking it up for the benefit of his eldest daughter, and afterward accompanying his other children in turn through the incomparable poem. His Dante classes have included some very distinguished men, and have given him great pleasure. Mr. Dana's study of Dante has been almost continuous for thirty years. He has accumulated an extensive and valuable Dante library. One could scarcely quote a line in the "Divine Comedy" which Mr. Dana would not immediately place. When the editor of "The Sun" met Pope Leo XIII. a few years ago in the Vatican Palace, two most accomplished Dante scholars came together, and they exchanged ideas on doubtful readings upon equal terms and with mutual satisfaction.

IV.

After leaving Harvard the need of out-of-door life and the prospect of intellectual companionship, at a time when books were forbidden to him by the oculists, turned Mr. Dana to the Brook Farm Association for Agriculture and Education, then recently established in West Roxbury. In that remarkable attempt to combine high ideals of thought and conduct with the manipulation of fertilizers and the cultivation of vegetables, Mr. Dana was associated with Nathaniel Hawthorne, Margaret Fuller, George William Curtis, A. Bronson Alcott, William Henry Channing, George and Sophia Ripley, and others. Theodore Parker, as pastor of the Unitarian Church in West Roxbury, was in close touch with the community. Mr. Dana's share in the division of labor was the management of the fruit department.

The history of the Brook Farm experiment, notable because of its relation to the intellectual movement in New England at that time, as well as for the distinction subsequently attained by most of those who held hoes or milked cows in its service, is not likely to be written by any one directly informed. Nearly all of the Associates have passed away without recording their reminiscences of Brook Farm. Hawthorne's tale is avowedly a fanciful picture. In the preface to the "Blithedale Romance" he appealed to Mr. Dana to preserve for the public both the outward narrative and the inner truth and spirit of the whole affair. That was in 1852; there has been no response yet, and I do not think Mr. Dana will ever find time to chronicle Brook Farm. A gentleman now living in the West, who as a boy was placed by his parents under the

tutelage of the philosophers of the community, once told me that he remembered Dana as the sole person connected with the enterprise who showed any real talent for farming, or manifested much practical sagacity in affairs generally.

In one way Brook Farm determined Mr. Dana's career; for while a member of that

A GATEWAY AT DOSORIS.

celebrated community he had a part in the management of a publication called "The Harbinger," devoted to social reform, transcendental philosophy, and general literature. In 1844, when the condition of his eyesight permitted him to go to work in earnest, he obtained a place under Elizur Wright on "The Boston Chronotype," a daily newspaper; and from that time, just fifty years ago, his connection with daily journalism has been unbroken, except during the period of the Civil War.

Elizur Wright, better remembered in Boston as an insurance actuary than as a newspaper editor, used to tell one story about the youth whom he hired to help him run "The Chronotype." It was an orthodox newspaper, and a great favorite with the Congregational ministers of Massachusetts and the adjoining States. Mr. Wright went away for a few days, leaving his assistant in control. "During my absence," said Wright, "'The Chronotype' came out mighty strong editorially against hell, to the astonishment of the subscribers and the consternation of the responsible editor. When I got back I was obliged to write a personal letter to every Congregational min-

ister in the State, and to many deacons, explaining that the paper had been left in charge of a young man without mellow journalistic experience. Dana always had a weakness for giving people with fixed convictions something new to think about."

"On 'The Chronotype,'" says Mr. Dana himself, "I wrote editorials on all sorts of subjects, read the exchanges, edited the news, did almost everything, and drew five dollars a week. Then I left Boston to better myself, and came on to New York, where 'The Tribune' gave me ten dollars as city editor. That was in February, 1847. Along in the autumn I struck, and Greeley made it fourteen dollars. So it went on until the French Revolution of 1848. I went to Greeley and told him I wanted to go to Europe for the newspaper. He said: 'Dana, that's no use. You don't know anything about European matters. You would have to get your education before your correspondence was worth your expenses.' Then I asked him how much he would pay me for a letter a week. 'Ten dollars,' he said. I went across and wrote one letter a week to 'The Tribune' for ten; one to McMichael's Philadelphia 'North American' for ten; one to 'The Commercial Advertiser' in New York for ten; and to 'The Harbinger' and 'The Chronotype' one apiece for five. That gave me forty dollars a week for five letters, until 'The Chronotype' went up, and then I had thirty-five. On this I lived in Europe eight months, went everywhere, saw plenty of revolutions, supported myself there and my family here in New York, and came home only sixty-three dollars out for the whole trip." Mr. Dana had married, in 1846, Miss Eunice Macdaniel, who then lived in Walker Street, New York.

"On returning from Europe," Mr. Dana went on, continuing the narrative of his early journalism in the financial aspect personal to himself, "I went back to 'The Tribune' at twenty dollars a week. That and twenty-five dollars were the figures for a long time; in fact, until another newspaper offered me one hundred. I went to 'The Tribune' people and told them I couldn't afford to stay at twenty-five. They reminded me gently that Mr. Greeley drew only fifty dollars; it clearly wouldn't do for me to get more than he had. So they gave me fifty, the same as Horace had, and that was the highest salary I ever received on 'The Tribune.' I worked for fifty until I went into the War Department with Stanton."

V.

In the "Tribune" establishment, during the exciting ten years that prepared for and ushered in the Civil War, Mr. Dana supplied the journalistic qualities which Mr. Greeley lacked. Every newspaper man understands that while Horace Greeley was a great genius, with a power of writing that drove thought home with a force and a piquancy unsurpassed, he was not a great editor in the proper sense of the word. Dana, with his wider range of intellectual interest, his more accurate sense of news perspective, his saner and steadier judgment of men and events, and his vastly superior executive ability, impressed his own personality upon the journal of which he was one of the proprietors, and more than nominally the managing editor.

The brilliant staff which Mr. Greeley and Mr. Dana gathered around them during the long fight against the extension of slavery, and for the organization of that sentiment in the North which gave birth to the Republican party, included among other writers Bayard Taylor, George Ripley, William Henry Fry, Richard Hildreth the historian, the Count Adam Gurowski, and James S. Pike. The private letters from Greeley and Dana published by Mr. Pike some years before his death, in a volume entitled "First Blows of the Civil War," and those letters of Greeley to Dana which have found their way into print, sketch the inner workings of the "Tribune" office during this most interesting period. The "Tribune" men were dead in earnest, working both for a great principle and for newspaper fortune. Greeley, uneven in temperament, is seen alternating between enthusiasm and despondency; sometimes putting in the heaviest licks, sometimes dispirited almost to hopelessness in face of the South, and harassed by the cranks and impracticables at the North. "At the outset," writes the Hon. Henry Wilson in his "Rise and Fall of the "Slave Power, "Mr. Greeley seemed disinclined to enter the contest. He told his associates that he would not restrain them, but, as for himself, he had no heart for the strife."

Dana, the central figure in the activity of the establishment, overflowing with vitality, enterprise, and pertinacious cheerfulness, lived ten lives in the ten years that carried him from thirty to forty. We see him prodding the sluggards and holding back the over-hasty; taking the whole responsibility on his shoulders during Gree-

MR. DANA'S HOUSE ON DOSORIS ISLAND AS SEEN FROM THE DRIVEWAY.

ley's protracted vacations in Europe; rushing off to the stump for some favorite Free Soil candidate; laying plans to gratify his chief's tacit but unconquerable desire for public office; arranging newspaper combinations in New York, and sending "The Weekly Tribune" up to two hundred and eighty thousand among the farmers of the Northern States; finding fun in every new phase of politics, while keeping the paper straight on its course as the leading organ of anti-slavery sentiment, and working night and day with as serious a purpose as ever animated any journalist; and in brief intervals of leisure running down to his family at Westport, and writing thence such descriptions of tranquil domesticity as this:

"I have been busy with my children, driving them about in old Bradley's one-horse wagon, rowing and sailing with them on the bay and Sound, gathering shells on the shore with them, picking cherries, lounging on the grass, gazing into the sky with the whole tribe about me. Who'd think of paying notes under such circumstances? There's no delight like that in a pack of young children—of your own. Love is selfish, friendship is exacting, but this other affection gives all and asks nothing. The man who hasn't half a dozen young children about him must have a very mean conception of life. Besides, there ought always to be a baby in every house. A house without a baby is inhuman."

It was during these crowded years just before the war that Mr. Dana found time to project and produce, in connection with Mr. Ripley, the "American Cyclopedia," an undertaking that involved on his part an amount of editorial labor that would have seemed formidable to any other man. While this tremendous job was still in hand, he prepared and published the first edition of his "Household Book of Poetry," one of the best anthologies in existence, shaped by a catholic taste and a genuine love of poetry. Few books have gone into more American homes, or counted more for sound education and continuing pleasure.

In the last year of Mr. Dana's fifteen years' connection with "The Tribune," he made an unsuccessful effort to put Horace Greeley in the place wherein that sage fancied he would be most useful to his country; that is to say, in the Senate of the United States. The most important consequence of the estrangement which had brought about the dissolution of the political firm of Seward, Weed and Greeley, had been the defeat of Seward at Chicago, and the nomination of Abraham Lincoln;

a fortunate event largely, if not principally, due to the attitude of the "Tribune" men towards Seward. Early in the spring of 1860, Greeley was privately offering to bet twenty dollars against Seward's nomination, and was defining his own position in this philosophic, if somewhat profane, fashion:

"I don't care what is done about the nomination. I know what ought to be done; and having set that forth, am content. I stand in the position of the rich old fellow who, having built a church entirely out of his own means, addressed his townsmen thus:

"'I've built you a meeting-house,
And bought you a bell;
Now go to meeting,
Or go to h—!'"

The next year the New York Legislature had to elect a senator to succeed Mr. Seward, then already chosen by Mr. Lincoln to be his Secretary of State. Mr. Dana went to Albany in Greeley's interest, and managed a campaign which nearly resulted in his nomination by the Republican caucus. The vote was almost equally divided between Mr. Greeley's friends and those of Mr. William Maxwell Evarts; while a few legislators, pledged to Judge Ira Harris, held the balance of power. Thurlow Weed defeated Greeley by procuring the transfer of the entire Evarts vote to Judge Harris, an achievement which partially squared the Chicago account, and which is interesting as the last incident of a famous political quarrel.

Mr. Dana withdrew from "The Tribune" on April 1, 1862. His resignation as managing editor was due to a radical disagreement between Mr. Greeley and himself as to the newspaper's policy with regard to the conduct of the war. Mr. Dana was immediately asked by Secretary Stanton to go to Cairo to examine and settle the accounts of the Quartermaster's Department. The job involved the investigation of tangled and disputed claims against the Government, amounting to between one and two millions of dollars. By far the larger part of the claims were found to be unsound, and were rejected. This work, and other special work of importance to which Stanton at once assigned Mr. Dana, led to his appointment as Assistant Secretary of War, an office which he held until the end of hostilities.

VI.

MR. DANA'S services as Assistant Secretary of War are matters of public history, and need be related here only so far as they illustrate the character of the man, or help to describe the perimeter of his many-sided experience.

Mr. Lincoln once defined one of Mr. Dana's functions during the war period by styling him "the eyes of the Government at the front." For perhaps a third of the whole time between his appointment as Assistant Secretary of War and the fall of Richmond, Mr. Dana represented the Department at the scene of operations. He was with Grant before and behind and around Vicksburg for four months. He saw the Chattanooga campaign from beginning to end. He went with Sherman to the relief of Burnside in Knoxville. He was in the Wilderness, and at Spottsylvania, and everywhere with the army throughout the tremendous fighting in the spring of 1864. He was with Sheridan in the Shenandoah Valley in the autumn of that year; and he travelled with Grant back to Washington from Richmond, after the surrender of Lee and the death of the Confederacy. For months at a time he was at the front, in the saddle, on the march, on the field when there was fighting, living at army headquarters as the official representative of the civil authority, in close personal relations with the commanding generals, fully posted as to their intended movements and largest plans, and sending back to Washington, over General Eckert's wires, daily, and often hourly, despatches for the information of the Secretary of War and the President. Dana's reports to Stanton, when they were of importance, as they generally were, went straight to the White House as soon as they had been translated from the cipher.

These despatches, distinguished by common sense, clear perception, direct and fearless statement, and utter lack of respect for foolish or unnecessary routine, constitute what is unquestionably the most important work of reporting ever done by any newspaper man. The same qualities which make Mr. Dana a great journalist, made him a consummate reporter of military events. Lincoln saw from the first that he had committed no mistake in his choice of a pair of eyes. He wanted, most of all, the absolute truth of the situation—the broad truth freed from unessential details—as it appeared to a swift and accurate intelligence and a keen judge of human character. He got it, and more, in Dana's despatches and letters to Stanton. In the routine reports of the military service, tardy in arrival, and in construction ham-

pered by all of the conventions, the leaders and lesser officers upon whose personal qualities depended, in the last analysis, the fate of the Union cause, figured merely as names, with hardly more individuality than so many algebraic symbols. In the Assistant Secretary's reports the men in the field jump into life in from two to half a dozen lines of rapid portraiture. They stood before Lincoln in his study in the White House as if they were there in person, with all of their virtues and imperfections. A few words of incidental characterization, a half humorous reference to some small incident, gave the President a better understanding of the remote instruments through which he was working to suppress the Rebellion than he could have derived by any other medium short of his own personal observation of the men themselves. Miles of the customary military reports were worth less to Lincoln, for his purposes, than half a dozen of Dana's vivid sentences.

MR. DANA'S HOUSE ON DOSORIS ISLAND AS IT FRONTS LONG ISLAND SOUND.

It is quite obvious that in most hands this would be a dangerous and misleading method of reporting military events. Few men in Mr. Dana's place would have had the courage to disregard so entirely the conventional formulas of official communication; few men in Mr. Lincoln's place would have been so quick to recognize and appreciate the value of the service. Mr. Dana treated his subject in the only way possible to his mind and pen. He relied, as it has always been his habit to rely, with full confidence upon the soundness of his own electric intuitions. He represented the facts about men and affairs at the front precisely as he himself saw them, without fear or favor, and without terror of precedent. His sole purpose at any time was to give the Government at Washington the information of which it had need at that time. In the whirl and din of the front he sometimes made mistakes of fact, and was quick to correct them. He misjudged men occasionally, and at the earliest opportunity put them right again. He kept his head at times when camp sentiment and even headquarters were in the delirium of false hope, or in the indigo depths of unnecessary discouragement.

Upon the steadiness of Dana's judgment, the justice of his observations, and the singleness of his patriotic purpose, Abraham Lincoln came to depend more and more during the last two years of the war. It is impossible to look over the Assistant Secretary's telegrams and letters from the front, either those already printed in the voluminous collection of war documents issuing from the Government Press, or the equally important papers that still belong to unpublished history, without wondering at the discernment shown in his early estimates of leaders then almost unknown; at the sureness with which he distinguished the stuffed heroes from the real ones, recog-

A CORNER OF THE LIBRARY AT DOSORIS.

nized latent military genius, and detected the bogus article under no matter what pretentiousness of pomp and circumstance; or at the extent to which his observations and suggestions from the field influenced the military policy of the Administration, and helped to determine the career of generals, the achievements of armies, and the destiny of the national cause.

From the hundreds of character sketches swiftly drawn at first sight for the information of Stanton and Lincoln, take, for example, this estimate of John A. Logan, then not very conspicuous among the volunteer generals for the Western States: "This is a man of remarkable qualities and peculiar character. Heroic and brilliant, he is sometimes unsteady. Inspiring his men with his own enthusiasm on the field of battle, he is splendid in all its crash and commotion; but before it begins he is doubtful of the result, and after it is over he is fearful we may yet be beaten. A man of instinct, and not of reflection, his judgments are often absurd, but his extemporaneous opinions are very apt to be right. Deficient in education; deficient, too, in a nice and elevated moral sense, he is full of generous attachments and sincere animosities. On the whole, few can serve the cause of the country more effectively than he, and none will serve it more faithfully."

Mentioning Sherman at the time when that commander's name was scarcely known in the East, except for his failure to take Vicksburg in the December previous to Grant's success at that point, Dana writes nothing but admiration and praise: "Sherman tolerates no idlers, and finds something for everybody to do. The Chief of Artillery [in the Fifteenth Corps staff], Major Taylor, directed by Sherman's omnipresent eye and quick judgment, is an officer of great value, although under another general he might not be worth so much. On the whole, General Sherman has a very small and a very efficient staff, but the efficiency comes mainly from him. What a splendid soldier he is!"

Long afterwards, when Sherman was about to start on his march to the sea, it became Mr. Dana's official duty to rebuke that commander, gently and indirectly, for his lack of one of the prime qualities of good generalship, namely, tightness of mouth concerning his own military plans. Grant had been annoyed by the publication in certain Western newspapers of authentic intelligence concerning Sherman's intended movements. The silent general complained of this to Stanton, implying that the leakage was in the War Department. There was a prompt investigation, and it proved that one of Sherman's paymasters was communicating to his friends the general's plans as stated by Sherman himself. Stanton got hold of a letter written by a member of Sherman's staff to

somebody in Washington, also giving full details of projects which it was better the enemy should not know.

"If Sherman cannot keep from telling his plans to paymasters," wrote Stanton angrily to Grant, "and his staff are permitted to send them broadcast over the land, the Department cannot prevent their publication."

Dana thereupon politely notified Sherman that correct information was escaping from headquarters at Atlanta and getting into the public prints; and he received this cheerful, if somewhat irresponsible, reply:

"To Hon. C. A. Dana, Assistant Secretary of War: If indiscreet newspaper men publish information too near the truth, counteract its effect by publishing other paragraphs calculated to mislead the enemy, such as, 'Sherman's army has been much reënforced lately, especially in the cavalry, and he will soon move by several columns in circuit, so as to catch Hood's army;' or, 'Sherman's destination is not Charleston, but Selma, where he will meet an army from the Gulf.'"

VII.

EARLY in September, 1864, Mr. Dana went to Rosecrans's headquarters at Chattanooga to accompany the Army of the Cumberland in the great movement which was then expected to be the finishing blow of the war. On his way down through Tennessee he had a long interview with Andrew Johnson on the political future of that almost reconquered State. When he reached headquarters at Stevens's Gap, Rosecrans received him with proper courtesy, but at once began a long tirade against Stanton.

"General," said Mr. Dana, "I am not here to report your opinion of Mr. Stanton. If there's anything your army needs, or that you want done by the Department, tell me, and you shall have it."

The Assistant Secretary had not been many weeks with this estimable gentleman, but most unfortunate soldier, before he saw clearly that what the army needed above all things was another commander. The disastrous day of Chickamauga came, with its casualty list on the Union side of sixteen hundred killed, nine thousand wounded, and five thousand prisoners or missing, and its blunder of generalship rendering useless this awful sacrifice. Dana witnessed the rout of Sheridan's and Davis's divisions, and was swept off that part of the field in the panic which seemed like another Bull Run. The first news which he sends to Stanton and Lincoln is disheartening, but he is able to modify it a few hours later, when he gets from General Garfield the story of Thomas's heroic stand at the left of the long line. Rosecrans withdraws the entire army into Chattanooga, and begins to waver between plans for resistance and plans for further and final retreat. He follows up the great blunder of the Chickamauga day with the almost equally expensive mistake of withdrawing the Union forces which held Lookout Mountain, and abandoning that position to Bragg's army.

This much of history is necessary in order to understand the full significance of Mr. Dana's despatch to Stanton on September 24th, two days after the retreat into Chattanooga, recommending the removal of Rosecrans and the substitution of "some Western general of high rank and great prestige, like Grant."

Six days later, after a long and frank talk with Garfield, then Rosecrans's chief of staff, Mr. Dana repeated urgently his recommendation that Rosecrans should be removed; and he suggested that Thomas, "the rock of Chickamauga," be put in command. "He is certainly," wrote Dana, "an officer of the very highest qualities, soldierly and personal."

An incident very creditable to Thomas then occurred. On the strength of the camp gossip, Brigadier-General Rousseau, who was briefly described by Dana to Stanton as a person "regarded throughout this army as an ass of eminent gifts," went on his own account to Thomas, and informed him that the War Department was inquiring how the army would like to have him in the chief command. Thomas at once sent a confidential friend to Dana to say that while ready to answer any other call to duty, he could not consent to become the successor of Rosecrans, because he would not do anything to countenance the suspicion that he had intrigued against his commander.

Meanwhile, with Thomas holding to this attitude on the question of his own promotion, affairs at Chattanooga went from bad to worse. The army had lost both confidence in its commander and spirit for the work ahead. At headquarters incapacity ruled, with fluctuating designs, fussiness over details, procrastination on frivolous pretexts, and seeming indifference to the perils that were gathering about the army as the autumn grew older. Dana telegraphed again on October 12:

"I have never seen a public man possessing talent with less administrative power, less steadiness and clearness in difficulty, and greater practical incapacity than General Rosecrans. He has invention, fertility, and knowledge, but he has no strength of will and no concentration of purpose. His mind scatters; there is no system in the use of his busy days and restless nights; no courage against individuals, in his composition; and, with great love of command, he is a feeble commander. He is conscientious and honest, just as he is imperious and disputatious; always with a stray vein of caprice, and an overweening passion for the approbation of his personal friends and the public outside. I consider the army to be very unsafe in his hands, but know of no man except Thomas who could now be safely put in his place."

The sequel is well known. A week later Mr. Dana went to Nashville, returning to Chattanooga the next day in company with General Grant; the train narrowly escaping wreck on a high embankment, where a railroad tie had been planted on the track by rebel sympathizers for the destruction of the Union commander. Two days later Rosecrans had been practically superseded by both Grant and Thomas, through a military reorganization by which the former took the command of the military departments of the Tennessee, Ohio, and Cumberland, and the latter the command of the old Army of the Cumberland, increased by the addition of the Eleventh and Twelfth Corps. Then followed the splendid actions around Chattanooga, Orchard Knob, Lookout Mountain, Missionary Ridge, with their momentous results. Mr. Dana saw the storming of the Ridge, perhaps the most glorious and picturesque exploit of the whole war. He telegraphed to Stanton:

"Glory to God! the day is decisively ours. Missionary Ridge has just been carried by a magnificent charge of Thomas's troops, and the rebels routed." And afterwards: "The storming of the Ridge was one of the greatest miracles in military history. No man who climbs the ascent by any of the roads that wind along its front can believe that eighteen thousand men were moved up its broken and crumbling face, unless it was his fortune to witness the deed. It seems as awful as a visible interposition of God. Neither Grant nor Thomas intended it. Their orders were to carry the rifle-pits along the base of the Ridge and capture their occupants; but, when this was done, the unaccountable spirit of the troops bore them bodily up these impracticable steeps, over the bristling rifle-pits on the crest and the thirty cannon enfilading every gully. The order to storm appears to have been given simultaneously by Generals Sheridan and Wood, because the men were not to be held back, dangerous as the attempt appeared to military prudence. Besides, the generals had caught the inspiration of the men, and were themselves ready to undertake impossibilities."

In the middle of December Mr. Dana went back to Washington, at Grant's request, to explain that general's wishes in regard to the winter campaign.

VIII.

MR. DANA'S relations with Grant, from his first acquaintance with him at Vicksburg until the end of the war, were of a peculiarly interesting character. There is no doubt that Grant's military and personal fortunes were at a critical stage when Dana went down to Vicksburg from the War Department early in the spring of 1863. The long delay in capturing the rebel stronghold had started up all the grumblers and growlers at the North. Amazing reports were current, and generally credited, as to personal habits which unfitted the general for high or continuous responsibility. McClernand hoped to regain the command of the expedition, and it was notorious that he and his friends were intriguing against Grant. Other enemies were raising a clamor in the newspapers, and demanding Grant's removal. General Sherman has testified that at this time even Mr. Lincoln and General Halleck seemed to be losing confidence in Grant. His local successes had been brilliant, but the true measure of his military ability and his capacity for larger enterprises were as yet unknown quantities. Mr. Dana's firm belief in Grant's staying powers and certain future usefulness to the country, was based on close and accurate observation of his character. His letters and despatches from Vicksburg, urging the retention of the general as strongly as he afterwards urged the removal of Rosecrans, for the sake of the Union cause, effectually silenced Grant's enemies at Washington, and unquestionably deterred the Administration from a colossal mistake which, as everybody can now see, would have changed the whole course of history.

The Assistant Secretary was in camp with Grant frequently during the rest of

the war. The general liked to have Dana at headquarters, and that was likewise the case with the other commanders with whom his missions to the front brought him into personal association. Whatever there might be of military jealousy of civilian supervision, yielded to the charm of his companionship and the tact with which he performed his delicate duties. The commanders quickly discovered that he was there not in any sense as a watch over, or check upon, their operations, but to help them along with all of the aid the Department and the Administration could render. The generals were invariably Mr. Dana's friends.

When the fighting began in the Wilderness, in May, 1864, the bloodiest month of the whole war, Dana was summoned to the War Department late one night, when he was at a party. He hurried over to the Department in his evening dress. The President was there, talking very soberly with Stanton.

"Dana," said Mr. Lincoln, "you know we have been in the dark for two days since Grant moved. We are very much troubled, and have concluded to send you down there. How soon can you start?"

"In half an hour," replied Dana.

In about that time he had an engine fired up at Alexandria, a cavalry escort awaiting him there, and with his own horse was aboard the train at Maryland Avenue that was to take him to Alexandria. His only baggage was a toothbrush. He was just starting, when an orderly galloped with word that the President wished to see him. Dana rode back to the Department in hot haste. Mr. Lincoln was sitting in the same place.

"Well, Dana," said he, looking up, "since you went away I've been thinking about it. I don't like to send you down there."

"Why not, Mr. President?" asked Dana, a little surprised.

"You can't tell," continued the President, "just where Lee is, or what he is doing; and Jeb Stuart is rampaging around pretty lively in between the Rappahannock and the Rapidan. It's a considerable risk, and I don't like to expose you to it."

"Mr. President," said Dana, "I have a cavalry guard ready and a good horse myself. If it comes to the worst, we are equipped to run. It's getting late, and I

A VIEW OF THE PARLORS AT DOSORIS.

want to get down to the Rappahannock by daylight. I think I'll start."

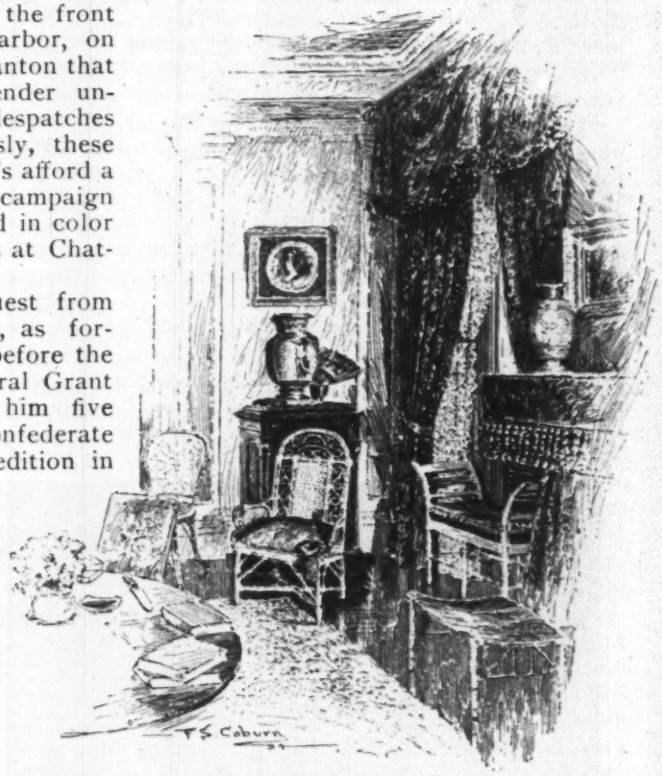
"Well now, Dana," said the President, with a little twinkle in his eyes, "if you feel that way, I rather wish you would. Good night, and God bless you."

He reached the scene of action on May 7th, without encountering the redoubtable Jeb Stuart, who was mortally wounded five days later in an engagement with Sheridan's cavalry. Dana saw all of the fighting of the next two months, and rode with Grant to the James and to the front of Petersburg. From Cold Harbor, on June 7th, Grant telegraphs to Stanton that Mr. Dana's full despatches render unnecessary frequent or extended despatches from himself. Read continuously, these Virginia despatches of Mr. Dana's afford a panorama of that tremendous campaign as powerfully drawn and as vivid in color as his story of the three months at Chattanooga.

Here is an interesting request from Grant to the War Department, as forwarded by Mr. Dana the day before the assault on Petersburg: "General Grant wishes that you would send him five hundred thousand dollars in Confederate money for use in a cavalry expedition in which he prefers to pay for everything taken."

The conscientious raid contemplated in this financial arrangement was probably the same expedition, led by General James Harrison Wilson, which gives us incidentally in Dana's despatches, a fortnight later, a flashlight view of General Meade. Wilson was one of the youngest, as well as one of the best and bravest soldiers in the Union army, and he distinguished himself in a thousand ways besides his capture of Jefferson Davis. He was accused by the Richmond "Examiner" of stealing, while on this raid, not only negroes and horses, but also silver plate and clothing. On the young general's return, Meade summons him to headquarters, and, "taking the 'Examiner's' statement for truth, reads him a lecture and demands an explanation. Wilson gravely denies the charge of robbing women and churches, and hopes that Meade will not be ready to condemn his command because its operations have excited the ire of the enemy."

A picture of Lincoln, on his visit to the front in June, 1864: "The President arrived here about noon, and has just returned from visiting the lines before Petersburg. As he came back, he passed through the division of colored troops under General Hinks, which so greatly distinguished itself on Wednesday last. They were drawn up in double lines on each side of the road, and welcomed him with hearty shouts. It was a memorable thing to behold the President, whose fortune it is to represent the principles of emancipation, passing bare-headed through the enthusiastic ranks of those negroes armed to defend the integrity of the American Nation."

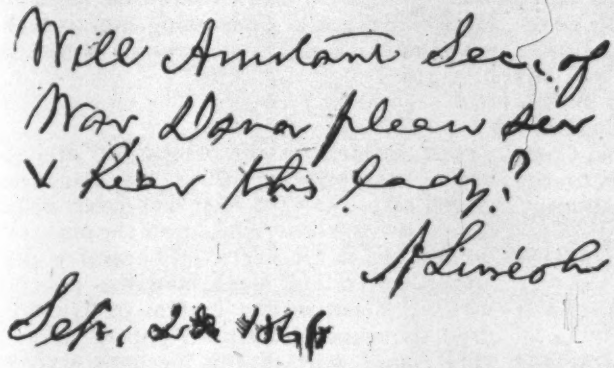


A CORNER OF THE PARLOR.

IX.

At his desk in the War Department in Washington Mr. Dana was the same man as at his desk in the "Tribune" office or in the "Sun" office. The visitor, whatever his business, met with a courteous reception, was listened to attentively and without any signs of undue haste, and then got a very prompt and decisive answer. Mr. Dana's remarkable capacity for disposing of questions and of persons swiftly, justly, and, in rightful cases, satisfactorily to the applicant, soon attracted Lincoln's attention, and he made good use of it. It was

the President's habit, during the last two years of his life, to send over from the White House to the Assistant Secretary's office all sorts of people, from war governors to soldiers' sweethearts, bearing little cards like this :



The Assistant Secretary's numberless functions when not at the front gave full employment to his energy. He conducted a good part of the more important official correspondence of the Department. His despatches to Grant and other commanders kept them informed of whatever it was necessary to know of the progress of events outside of their own immediate field. At one time he is in the Northwest untangling the red tape with which the governors of some of the States tied up at home troops which the Government badly needed for service. At another time he is looking after the plots of the rebel conspirators across the Canadian frontier. He receives reports, sends orders, investigates abuses, adjusts controversies, attends to multifarious details of routine, and runs the Department in Mr. Stanton's absence.

Only once, as far as I am aware, did any general attempt to obtain a reversal of one of Mr. Dana's decisions. It was a small matter, but the incident now seems rather amusing.

The Union Ladies' Committee of Baltimore proposed to provide a Thanksgiving dinner for the wounded in the hospitals there, and permission was asked by friends of the wounded Confederate prisoners to feed them likewise. Mr. Dana promptly granted it, seeing no great peril to the Union cause in turkey and cranberry sauce. Thereupon General Lew Wallace, in command at Baltimore, telegraphed to Stanton, through the Adjutant-General's office, this ringing and rhetorical protest :

"I hope the permission given by Hon. Mr. Dana, Assistant Secretary of War, to feast the rebel prisoners in hospital, will be withdrawn. I was not consulted. Had I been, I would have objected to the making of such a request. The permission will be construed as a license to make manifest once more the disloyalty, now completely cowed in this city. I beg the sleeping fiend may be let alone."

Stanton's reply was a short lesson in common sense. "The Secretary sees no objection to supplies for Thanksgiving being received and distributed to rebel prisoners by our Union Committee, provided our own men receive an equal share." The poor rebel wounded got their Thanksgiving dinner, and the sleeping fiend slept the better for being fed.

X.

MR. DANA'S duties brought him into personal contact, and often into intimate acquaintance, with nearly every conspicuous figure of the period, in civil or military life. With Stanton and with Lincoln, of course, his relations were particularly close. For both of those remarkable men his memory cherishes profound admiration and warm affection. Between Lincoln and Dana there was a bond in their common and equally strong perception of the humorous. The quality was lacking in Stanton ; and when Lincoln, on the night of the Presidential election of 1864, sat in the War Department awaiting the nation's verdict upon his administration, and sought to relieve the intense strain of the hour by reading aloud some of the nonsense of Petroleum V. Nasby and commenting upon the same, it was to the Assistant Secretary and not to the Secretary that the extraordinary lecture was addressed. Stanton listened with amazement. He could scarcely control his disgust and indignation at what seemed to him the unaccountable frivolity of such a performance at such a time.

Mr. Dana first saw Mr. Lincoln soon after his inauguration in March, 1861. He went to the White House with a party of New York Republicans on a political errand. The interview was in progress, and the President was explaining his views as to the New York patronage, when a door opened, and a tall and lank employee stuck in his head and made this announcement :

"She wants you !"

"Yes, yes," said Mr. Lincoln, visibly annoyed, and he went on with the explanation of his views.

Presently the door opened again, and the messenger returned:

"I say she wants you!"

Four years afterwards Mr. Dana came up to Washington from Richmond with Grant after the final victory of the Union army. He reached the capital on April 13th. On the afternoon of the 14th he received a despatch from Portland, Maine, reporting that Jacob Thompson was expected to pass through that town in disguise, on his way from Canada to England. Stanton was for arresting the rebel Commissioner, but he sent Dana over to the White House to see the President about it. Lincoln was in the little closet just off his office, in his shirt-sleeves, washing his large hands.

"Halloa, Dana," he said; "what is it now?"

Dana explained that Mr. Stanton had an opportunity to arrest Thompson, and thought it ought to be done.

"Well," drawled Lincoln, "I think not. When you have an elephant on hand and he wants to run away, better let him run."

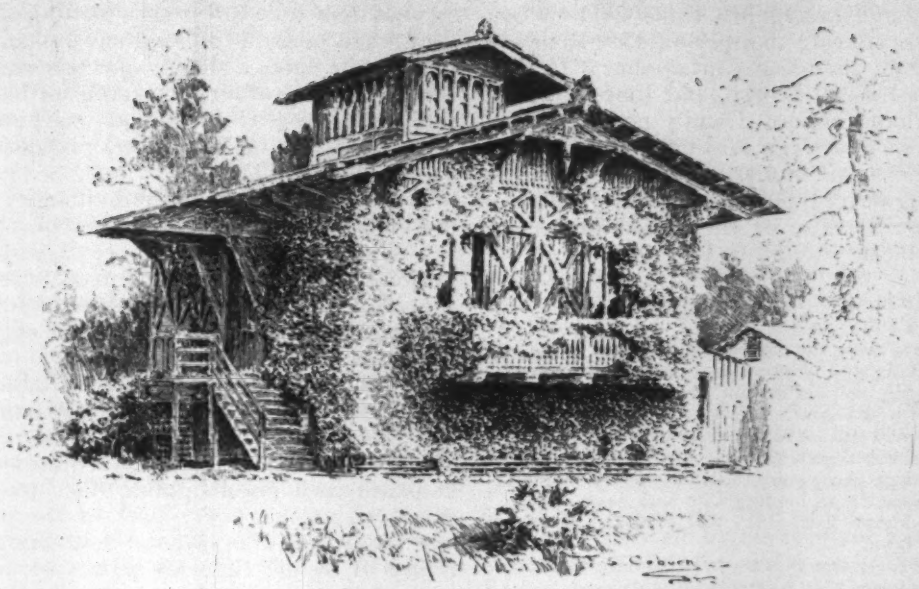
A few hours later Abraham Lincoln lay unconscious in the little bedroom in the Petersen house, opposite Ford's Theatre. Dana was with Stanton until two o'clock in the room adjoining the death-chamber. Then he went home to sleep. He was awakened in the morning by a knock at his door. It was Colonel Pelouze, one of the assistant adjutant-generals.

"Mr. Dana," said Colonel Pelouze, "Mr. Lincoln is dead, and Mr. Stanton directs you to arrest Jacob Thompson."

I have dwelt, perhaps, beyond the limits of due proportion upon the two years spent by Mr. Dana in the only public office he ever held, and constituting the only interruption to his continuous professional career of half a century. He talks much less than one would expect about his experiences during the war period, and has shown no signs of a disposition to put in permanent form the unequalled material afforded by his personal recollections of that period. Indeed, an almost curious indifference to past history, especially as concerning his own performances, is a noticeable trait of his character. With the keenest sense of news perspective in the matter of recording contemporaneous history, and with insatiable avidity for its facts of all sorts, he is inclined to regard as "old" things back of day before yesterday, or at least back of week before last. Possibly it is not natural that the historical impulse and the journalistic instinct, each in the highest form, should coexist. But Mr. Dana is always glad to see his friends of the war time, and he smiles when some veteran whom he last met it may be at Milliken's Bend, or Crawfish Springs, or New Bethesda Meeting House, persists in addressing him as General Dana, a military title which is not his by right.

XI.

THE failure of the Chicago "Republican" enterprise, in which Mr. Dana engaged after the Civil War was over, is still a mystery to those who know the man, but do not know the facts. The active promoter was a Mr. Mack, and the concern was organized with a capital of five hundred thousand dollars on paper. Only a very small part of this, perhaps sixty or eighty thousand dollars, was ever paid up, a large block of the stock being set aside as a bonus to induce some eminent man to become the editor. Mack went to Mr. Dana soon after Lee's surrender, and brought the influence of the Hon. Lyman Trumbull and others to bear in order to persuade him to accept the place. Mr. Dana went out to Chicago, and was welcomed with a banquet. On his part, and on the part of his friends in Chicago, there was complete ignorance of the true state of the concern's finances. Mack tried to build up a newspaper without cash. Mr. Dana took his stock, and became nominally editor-in-chief at a nominal salary of seven thousand or ten thousand dollars, he doesn't remember which, on a five years' or eight years' contract. A little later, when the emergencies of the concern compelled an assessment, he paid his notes to the amount of ten thousand dollars in good faith. He did not discover till afterwards that his was the sole response to the assessment. The business part of the establishment got in so bad a way on account of the lack of money, that, to disentangle himself, Mr. Dana offered to relinquish all of his stock, to release the company from its contract with him, and to quit, for ten thousand dollars in cash. That was paid to him, and he got out about square. Afterwards, by advice of counsel, he declined to pay the notes given by him at the time of the peculiar assessment already spoken of. Suit was brought against him, but after occupying the Illinois courts for ten or a dozen years, the case was decided in Mr. Dana's favor. Under such circumstances, he was editor of the Chicago "Republican"



THE BILLIARD HOUSE AT DOSORIS.

for about a year, and during that time it was a bright, spunky newspaper.

Then Mr. Dana came to New York, and, under conditions very different from those of the Chicago undertaking, acquired with his friends the old "Sun" establishment, which had been owned for thirty years by the Beach family. He took possession of the property at the beginning of 1868, and soon afterwards moved into the little corner room already described. From that time until this Mr. Dana has been the editor of "The Sun" in the full sense of the word. He is, and always has been, in sole charge. The prosperity of "The Sun," its achievements, and its position among the journals of the country, express Mr. Dana's absolute control over its every department. But this is not the story of a newspaper. It is only a necessarily imperfect sketch of the man who edits that newspaper; whose personality, however, perhaps to a greater extent than in the case of any other conspicuous journalist, is identified with the newspaper he edits.

XII.

WHAT are Mr. Dana's theories of journalism? At the bottom of my heart, I don't believe he ever stopped to think; that is to say, to formulate anything of the kind, apart from his general ideas of human interest, common sense, and the inborn know-how. He has always been much more concerned about the practical question of making for to-morrow morning a paper which its purchasers will be sure to read. Mr. Dana has lectured more than once on journalism, and his audiences and the readers of his published remarks have been delighted with his presentation of the subject; but his experience is too ripe and his wisdom far too alert to attempt a code of specific directions for the making of a great newspaper. The range of a newspaper depends first of all upon the breadth of its editor's sympathy with human affairs, and the diversity of things in which he takes a personal interest. If he is genuine, its qualities are his; and nothing that is in him, or that he can procure, is too good to go into its ephemeral pages.

What Mr. Dana himself writes, in "The Sun" or elsewhere, has that indefinable piquant quality of style which holds your interest and makes you read on without conscious effort, instead of laboring on with admiration—the flavor that is in Charles Reade, but not in George Meredith or George Eliot; in Saint-Simon and Sainte-Beuve, but not in Ruskin or Gibbon; in field strawberries, but not in California peaches.

When he was a very young man, Mr. Dana wrote poetry. Among his earliest contributions to periodical literature were from half a dozen to a dozen sonnets, usually of sixteen lines, published between 1841 and 1844 in various numbers of "The Dial," the remarkable magazine which Margaret Fuller, Ralph Waldo Emerson, and George Ripley edited for the benefit of a small but earnest group of men and women. "The Dial" was printed quarterly for about four

years, and among Mr. Dana's fellow contributors during that period were Emerson, Thoreau, Channing, Christopher P. Cranch, James Russell Lowell, and Jones Very.

Perhaps one of Dana's poems, written fifty-one years ago, will have now the same interest as a "human document," as would the daguerreotype of him in early manhood which the editor of this magazine has not been lucky enough to find:

VIA SACRA.

Slowly along the crowded street I go,
Marking with reverent look each passer's face,
Seeking, and not in vain, in each to trace
That primal soul whereof he is the show.
For here still move, by many eyes unseen,
The blessed gods that erst Olympus kept;
Through every guise these lofty forms serene
Declare the all-holding Life hath never slept;
But known each thrill that in Man's heart hath been,
And every tear that his sad eyes have wept.
Alas for us! the heavenly visitants,——
We greet them still as most unwelcome guests,
Answering their smile with hateful looks askance,
Their sacred speech with foolish, bitter jests;
But oh! what is it to imperial Jove
That this poor world refuses all his love!

That was in 1843. During the half century since then, Mr. Dana has read more poetry and written less than any other man on earth in whom the love of verse is genuine and strong.

In judging and using the prose or poetry of others, he is hospitable to almost any respectable style or method, no matter how different from his own, as long as the writer has something to say. His tastes are very catholic. He can tolerate either a style approaching barrenness in its simplicity, or rhetoric that is florid and ornate in the extreme, providing it conveys ideas that are not rubbish. He is continually reaching out for fresh vigor, unconventional modes, originality of thought and phrase. If all of Mr. Dana's staff of writers should happen to be cast in one mould, or should gradually assimilate themselves to a single type, so that there was monotony of expression in his newspaper, he would become uneasy. The first thing that would probably occur to him to do would be to send out for a blacksmith, or perhaps the second mate of a tramp steamship, or what not, to write for "The Sun" in the interest of virility and variety. If the man had good ideas, all right; Mr. Dana himself would attend to the syntax.

Imagination is a quality for which he has the highest respect, but it must go with sincerity. Dulness he cannot stand. He is as impatient of wishy-washy writing as of cant. He pities a fool and can be kind to him, but he hates a sham; and this hatred, seated in the profoundest depths of his nature, is the key to much that has puzzled some observers of Mr. Dana's professional career.

He communicates his individuality and methods to those around him unconsciously and by personal force, rather than by any attempt at didactics. No office is less a school of journalism in the sense of formal instruction, or even of systematic suggestion, than the "Sun" office.

In all of his relations with his subordinates and assistants in every department, Mr. Dana is a model chief. He is true to his helpers, reasonable in his requirements, constant in a good opinion once formed. His eyes are on every part of the paper every day, and they are not less sharp for points of defect than for points of excellence, but his tongue is ten times quicker to praise than to blame. Generous and prompt recognition of good service of any sort, or of honest, although only partially successful, effort, is habitual with him. His condemnation can be particularly emphatic, if there is occasion for emphasis; small literary sins and venial infractions of discipline provoke him to humorous commiseration, rather than to anger. He never fusses, never is overbearing, never quarrels with what can't be helped.

Mr. Augustin Daly tells a story about a visit of his to Mr. Dana's office to remonstrate upon what the manager regarded as too severe criticism of Miss Ada Rehan's performance in a certain part. The present publisher of "The Sun" was at that time its dramatic critic.

"I found no difficulty," says Mr. Daly, "in getting an audience with Mr. Dana. He glanced up from his work and asked, cheerily, 'What can I do for you to-day?'

"'Mr. Dana,' I began with great firmness, 'I have called to try to convince you that you should discharge your dramatic editor. He has——'

"'Yes, I see,' he interrupted, all suavity and smiles. 'Well, Mr. Daly, I will speak to Mr. Laffan about this matter, and if he thinks that he really deserves to be discharged, I will most certainly do it.'"

There is an apocryphal tradition, probably with some slight foundation of fact, which will do as well as if it were entirely true to illustrate Mr. Dana's indifference to disturbing elements, except as they may be useful for newspaper purposes. One night, in the early times of "The Sun," the

city editor rushed in from the outside room. "The Sun's" editorial office then consisted of four rooms, all small.

"Mr. Dana," exclaimed the city editor, "there's a man out there with a cocked revolver. He is very much excited. He insists on seeing the editor-in-chief."

"Is he very much excited?" replied Mr. Dana, turning back to his pile of proofs. "If you think it worth the space, ask Amos Cummings if he will kindly see the gentleman and write him up."

His judgment of the merits of articles submitted to him is, to an extent rarely equalled, independent of the writer's literary reputation. A famous name is no passport to his admiration. I think that Mr. Dana would write "Respectfully declined," or even "Nothing in it!" on a scrap of paper, and fold the same around a manuscript from Mr. Gladstone, providing it did not seem useful to him, with as little hesitation as across a poem on "Spring" from a schoolma'am in the backwoods of Maine or Georgia. If he were prejudiced either way, it would be in favor of the unknown schoolma'am struggling to find an outlet for her poetic sentiment. It is a source of great satisfaction to him to discover in out-of-the-way corners genius that has not been recognized, and to help it out of obscurity. This benevolent weakness has cost him, in the aggregate, thousands of hours of valuable time spent in the personal attempt to make a poor thing presentable, or in imparting advice and kind but frank criticism to persons unknown to him.

Once a clergyman of considerable eminence and sensational proclivity volunteered to write anonymously for "The Sun." His first article came. He had made the amazing blunder of trying to adapt himself to what he supposed to be the worldly and reckless tone proper to a Sunday newspaper. Mr. Dana chuckled quietly as he sent the manuscript back, indorsed in blue pencil, "This is too damned wicked!"

A clerk in the New York Post-Office, several years ago, copied out in his own handwriting the Rev. Edward Everett Hale's story, "The Man Without a Country," and offered it to "The Sun" as original matter for ten dollars. He had evidently found the story in a loose copy of the magazine where it was first published, and supposed it to be forgotten literature. Somebody proposed to publish the impostor's name.

"No," said Mr. Dana. "Mark the manuscript 'Respectfully declined,' and mail it to him. He has been honest enough to inclose postage stamps."

XIII.

MR. DANA looks upon the daily newspaper as something more than a bulletin of the world's events, or a vehicle for contemporaneous literature. He has steadily resisted the modern tendency to subordinate the editorial page, or to render it a mere reflection of public or partisan sentiment as understood by the newspaper's managers.

"The place of the newspaper press in education," he wrote not long ago in reply to a question from the State Department of Public Instruction, "is like that of the pulpit. It is incidental, not essential." But with Mr. Dana, as with every journalist who is influenced by his brilliant example, the place of the editorial page in the daily newspaper is essential, and not merely incidental. A newspaper without positive, independent, aggressive convictions, generated inside and not outside of the office, and without the habit of uttering them fearlessly, is easy enough to imagine; but it would be a newspaper without Mr. Dana.

He does not think it necessary to check off every piece of news, or even every important piece of news, with a corresponding paragraph of comment. That is not his idea of an editorial page.

"A man at the dinner table, or anywhere else," he said one day to a new writer, "who insists on giving you his opinion about everything on earth, is a bore. So is the newspaper."

He has no hard and fast rules to go by in the selection of topics for editorial treatment. You can never tell what subjects Mr. Dana will discuss, or what subjects he will pass over, in to-morrow's "Sun." His inclination is always towards the specific, rather than the abstract; towards the novel, the fresh, the unexpected, rather than the matter-of-course. He would leave over an article any day on "The State of the Union," in favor of one on "The Market for Poetry," or "The Vitality of Islam," or "The Sorrows of Rich Men," or "How Engaged Couples Should Act;" providing the latter were the more meritorious production, and seemed to him likely to be read with more interest by more people.

He has always believed in iteration as an agent in the process of planting ideas. "If you say a true and important thing once, in the most striking way, people read

it, and say to themselves, 'That is very likely so,' and forget it. If you keep on saying it, over and over again, even with less felicity of expression, you'll hammer it into their heads so firmly that they'll say, 'It *is* so;' and they'll remember forever it is so."

The characteristics of the man are in "The Sun." His broad sense of news interest, persistent, inquisitive, sympathetic, and appreciative in a thousand different directions, and as keen with respect to small things as to great, shapes every part of the paper, and dominates every department. His editorial page is himself. It reflects his independence of thought, his self-reliance, his humor and philosophy, and his marked partiality, ethical considerations being equal, or nearly so, for the cause of the under dog in the fight. No matter how the crowd shouts, he follows his own judgment. He follows it unhesitatingly, and without worrying about questions of expediency as affecting himself. He is loyal beyond most men in his friendships, and positive, although less persistent, and rather impersonal, in his dislikes. Nothing is more common than to hear him speaking kindly, and with just appreciation of their good qualities, of persons whom he is supposed to regard with unconditional disapproval.

The strongest and steadiest impulse in Mr. Dana's mind as an editor, is the American sentiment. It lies deeper than his partisanship, and it shapes his politics. His political philosophy may be Jeffersonian in its conception of the functions and limitations of the Federal Government in ordinary times, but back of that are not only the patriotism that is natural to his temperament, but also that broader idea of the nation's might and destiny which was bred in him by the events of the years when he was with Lincoln and Stanton, and with the armies in the field.

DOSORIS BLUFF, OVERLOOKING LONG ISLAND SOUND.

XIV.

THE revolution which his genius and invention have wrought in the methods of practical journalism in America during the past twenty-five years can be estimated only by newspaper makers. His mind, always original, and unblunted and unwearied at seventy-five, has been a prolific source of new ideas in the art of gathering, presenting, and discussing attractively the news of the world. He is a radical and unterrified innovator, caring not a copper

for tradition or precedent when a change of method promises a real improvement. Restlessness like his, without his genius, discrimination, and honesty of purpose, scatters and loses itself in mere whimsicalities or pettinesses; or else it deliberately degrades the newspaper upon which it is exercised. To Mr. Dana's personal invention are due many, if not most, of the broad changes which within a quarter of a century have transformed journalism in this country. From his individual perception of the true philosophy of human interest, more than from any other single source, have come the now general repudiation of the old conventional standards of news importance; the modern newspaper's appreciation of the news value of the sentiment and humor of the daily life around us; the recognition of the principle that a small incident, interesting in itself and well told, may be worth a column's space, when a large dull fact is hardly worth a stickful's; the surprising extension of the daily newspaper's province so as to cover every department of general literature, and to take in the world's fancies and imaginings, as well as its actual events. The word "news" has an entirely different significance from what it possessed twenty-five or thirty years ago under the ancient common law of journalism as derived from England; and in the production of this immense change, greatly in the interest of mankind and of the cheerfulness of daily life, it would be difficult to exaggerate the direct and indirect influence of Mr. Dana's alert, scholarly, and widely sympathetic perceptions.

The idea of the newspaper syndicate system, extensively and successfully applied during the past ten years, and with such marked effect upon the character of the miscellaneous literature furnished to the public through the daily press, originated with Mr. Dana. The first story syndicated by him, if I am not mistaken, was one by Mr. Bret Harte, in 1877 or 1878. Soon after that he purchased a number of short stories from some of the most eminent of living writers, "The Sun" sharing the expense and the right to publish the series with half a dozen selected journals in different parts of the United States. One of these stories was a tale called "Georgina's Reasons," by Mr. Henry James, Jr. A circumstance that seemed highly humorous to Mr. Dana, and particularly so in view of Mr. James's fastidious ideas of literary form, was that one of the Western journals in the syndicate should have lent distinction to the narrative by means of the following scheme of headlines in large, bold type:

GEORGINA'S REASONS!

HENRY JAMES'S LATEST STORY!

A WOMAN WHO COMMITS BIGAMY AND ENFORCES SILENCE ON HER HUSBAND! TWO OTHER LIVES MADE MISERABLE BY HER HEARTLESS ACTION!

XV.

MR. DANA'S life outside of his work is his own property, and is to be touched here with reserve. From late in the autumn until early in the spring he occupies his town house at the northwest corner of Madison Avenue and Sixtieth Street. His summer home, Dosoris, two or three miles from the village of Glen Cove, is an island of about fifty acres, in the Sound, close to the Long Island shore, and connected therewith by a short bridge. The estate gets its name from the circumstance that the island was once a wife's dowry, *dos uxoris*. Mr. Dana bought the place soon after his return from Chicago to New York, and extended and modernized the interior of the homely, comfortable mansion, which is just visible, through the foliage, from the passing steamboats in the Sound. One of the greatest enjoyments of his life has been found in the beautifying of Dosoris Island. Its trees and fruits and flowers are famous. Its proprietor is an accomplished botanist, a zealous and scientific cultivator, and an artist who might have been a distinguished landscape gardener if he had not been a great editor. He has made Dosoris a wonderful and celebrated arboretum; but to most visitors it is first of all a lovely spot.

An eminent painter who travelled in Cuba with Mr. Dana several years ago, was somewhat puzzled at the gratification which his companion manifested after a hot and tiresome excursion in the hills of the Vuelta Abajo. He did not learn the cause until dinner-time. Mr. Dana had satisfied himself by personal observation that the *pinus Elliotti*, or some other special *pinus* which had been troubling his mind, did grow in that region. He regarded the day as a perfect success.

Mr. Dana is fond of horses, of cattle, of dogs, even of pigs and feathered bipeds. He likes to have life, in all of its amiable forms, animal and vegetable, going on healthily and happily around him.

He is as constant in his tastes as in his friendships. An intellectual or æsthetic pursuit once begun by him becomes a lasting occupation and resource. Whether he takes up orchids, or Norse literature, or early Persian ceramics, his interest in the subject never shades back into indifference. His collection of Chinese porcelain of the best period is noted among connoisseurs for the rarity and beauty of its specimens, and the knowledge governing his selections. In pictorial art, his special fondness is for some of the painters of the Barbizon school, as shown by his purchases; but he is appreciative of all good art. He has never formed a large library, and is nothing of a bibliomaniac. He owns some rare volumes, but, as a rule, books are with him tools rather than treasures. He cares nothing for acquisition for the sake of display. He is fond of showing his pictures, or his china, or his trees, to those who can share his own unaffected enjoyment of them.

He is a companionable man, and he likes to gather entertaining people around him. His circle of personal acquaintance is remarkably large and various. He can be happy in the society of any refined person able to interest him, but he is happiest with his own family, his children and grandchildren. For twenty years his most intimate friend and most constant companion has been his son and principal professional assistant, Mr. Paul Dana.

A few weeks ago, just two days before he was seventy-five years old, Mr. Dana climbed to the top of Croydon Mountain in New Hampshire, leading a party of much younger men who came toiling and puffing after him. In his editorial office he is hard at work six days in the week, putting in like a boy of fifty, and still setting the pace for the profession which acknowledges him as its leader. To his own mind there is nothing extraordinary in this.

THE HUBBARD COLLECTION OF NAPOLEON PORTRAITS.

THE collection of Napoleon prints made by the Hon. Gardiner G. Hubbard, of Washington, D. C., is one of the two or three great collections in the world. It probably surpasses the famous collection in the British Museum. It represents the work of twelve or fifteen years and an enormous expenditure. Among the more than seventy-five portraits of Napoleon that it contains are examples of most of the great artists who painted him, and he is presented at every period of his life: first, with the boyish features of youth; then with the worn and sorrowful face that characterized his early manhood; then with the eager, aspiring, and noble face he had between twenty-five and thirty; then with the masterful face of the emperor; and, finally, with the face he wore in exile; the series ending with his death mask, and a copy of a lithograph showing the aspect of his body when removed to France, twenty years after his death. These portraits constitute almost a life-history. They are a complete series of "Human Documents." No such series of Napoleon pictures has ever yet been printed.

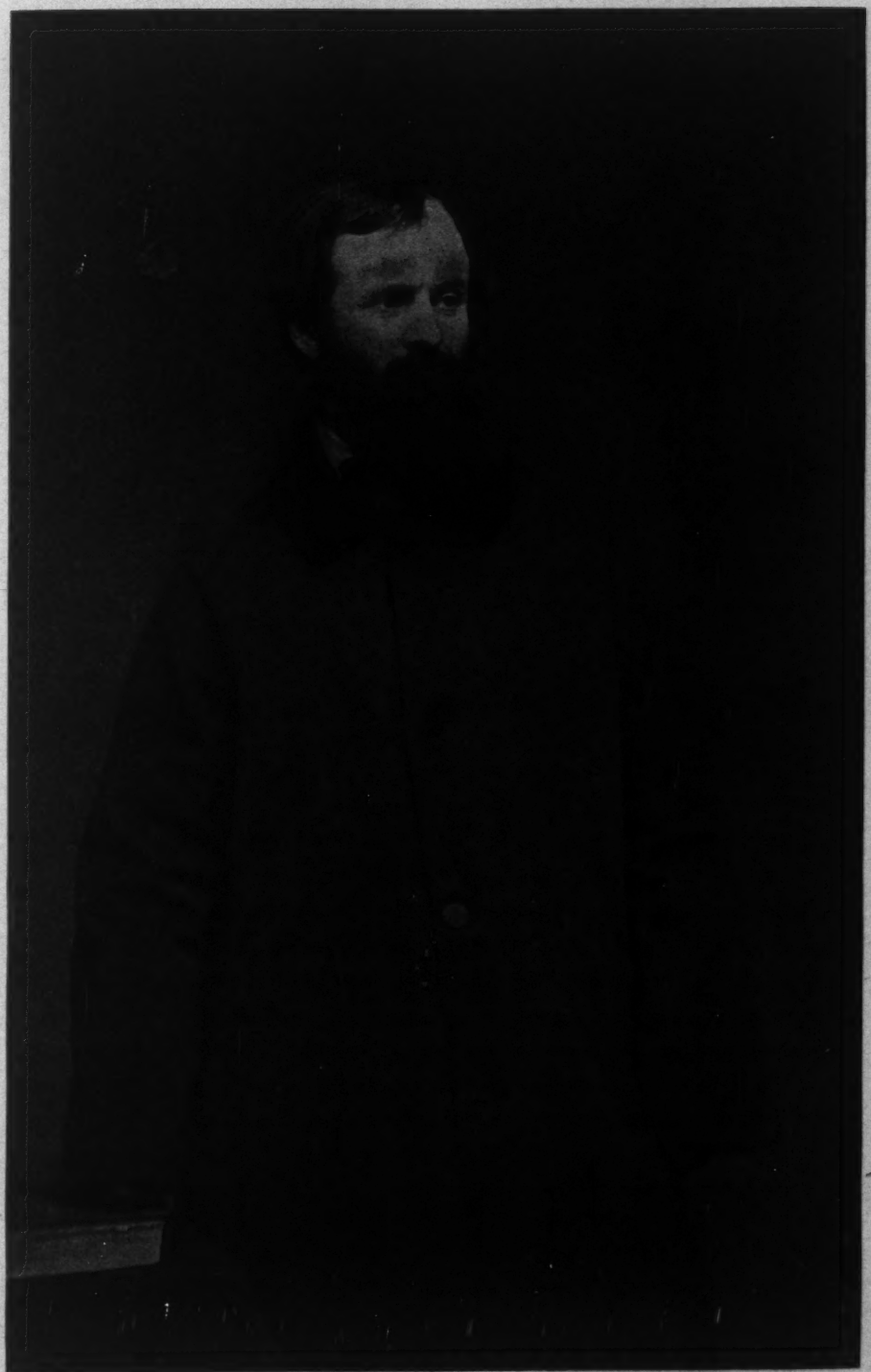
Mr. Hubbard's collection is notably rich, also, in portraits of members of Napoleon's family, of his marshals and generals, and of other people intimately associated with his career. It contains, also, many pictures of Napoleon's famous battles, and of other scenes connected with his life.

Mr. Hubbard, in the most generous manner, has placed this collection at the service of McClure's Magazine, and one hundred and fifty pictures, half of which are portraits of Napoleon, have been selected, and will be printed, mostly full-page, in the six issues of the magazine beginning with the November number.

The story of Napoleon's life, as revealed in the innumerable books of memoirs and correspondence, will be told in six chapters, accompanying the illustrations.

"HUMAN DOCUMENTS."

CHARLES A. DANA.



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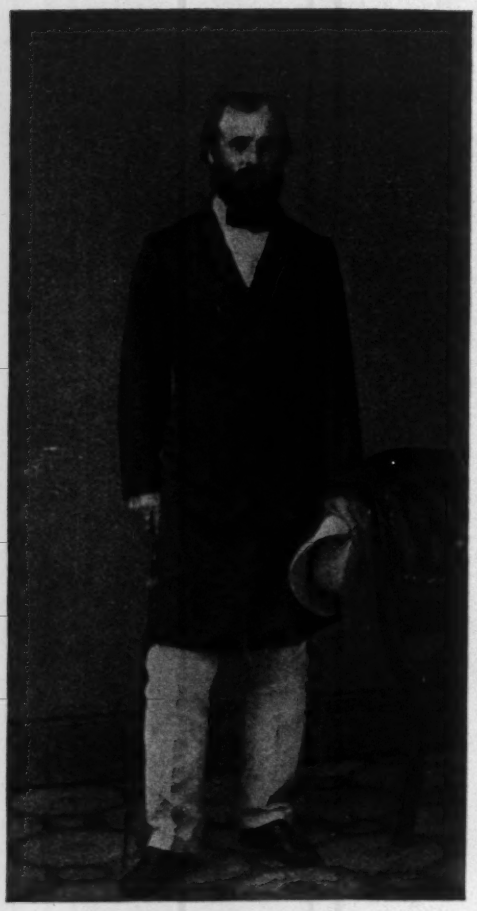

1857 AGE 38.

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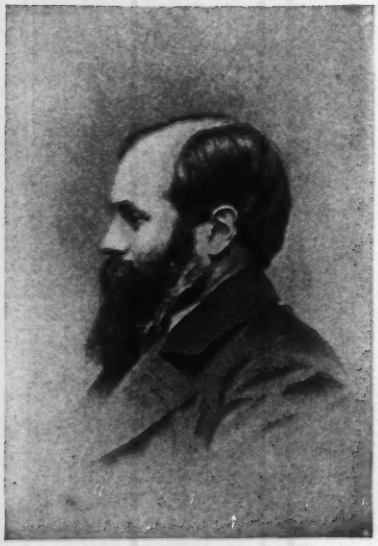

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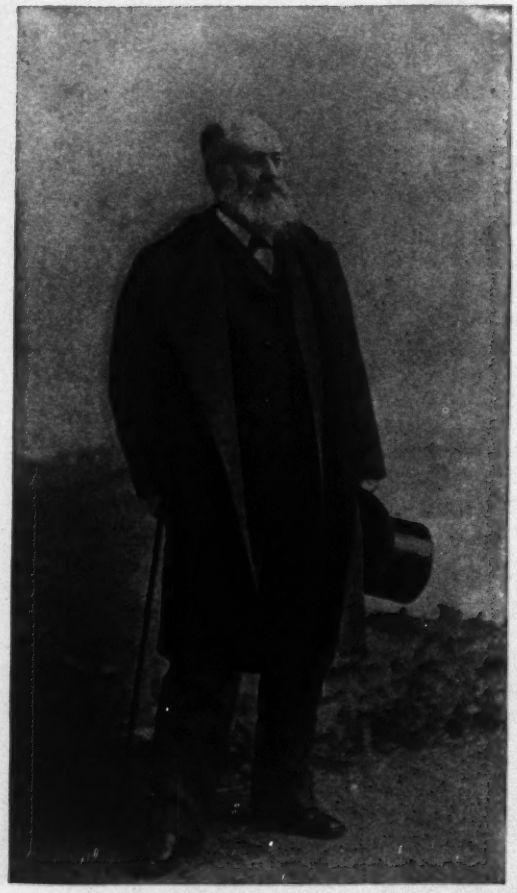

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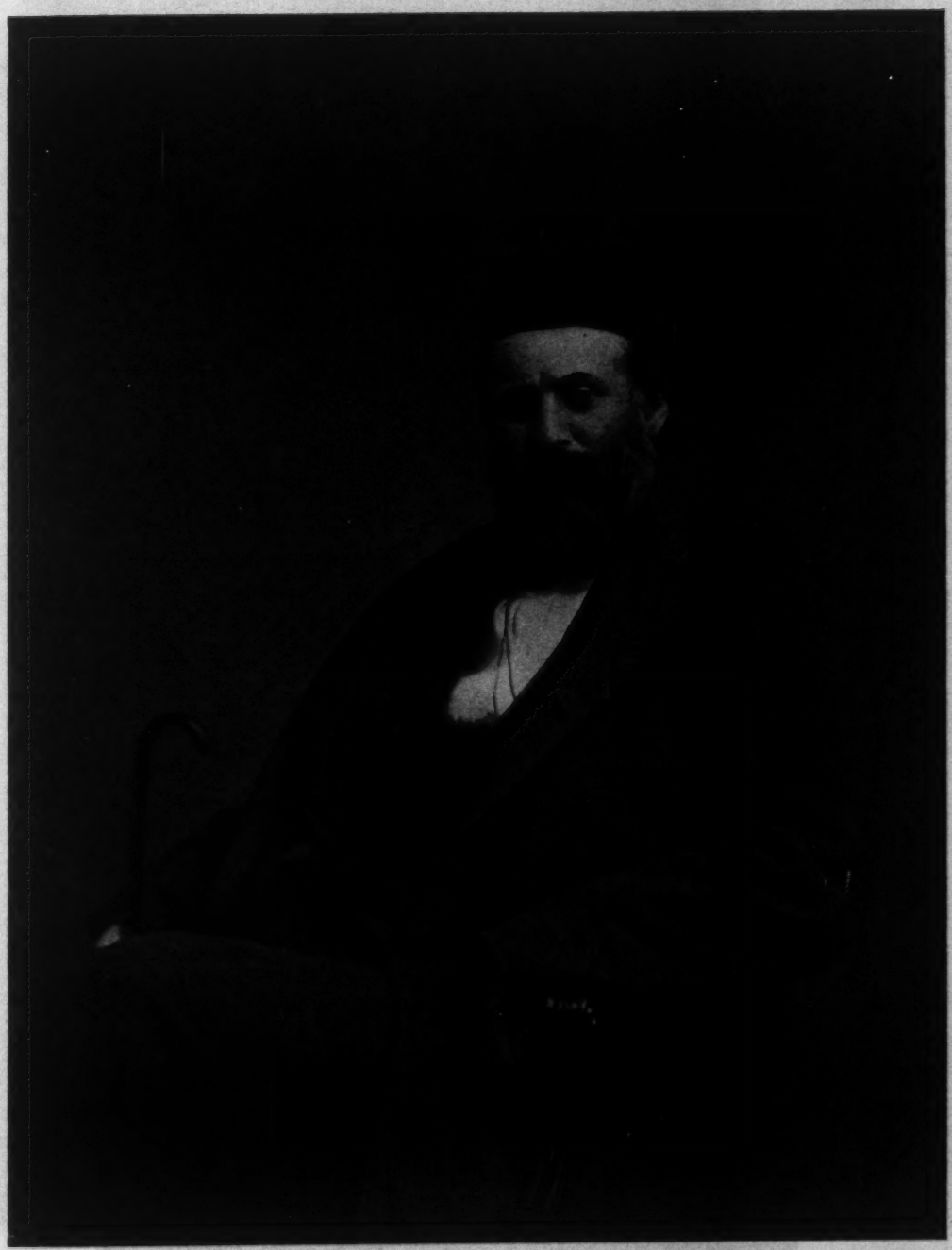

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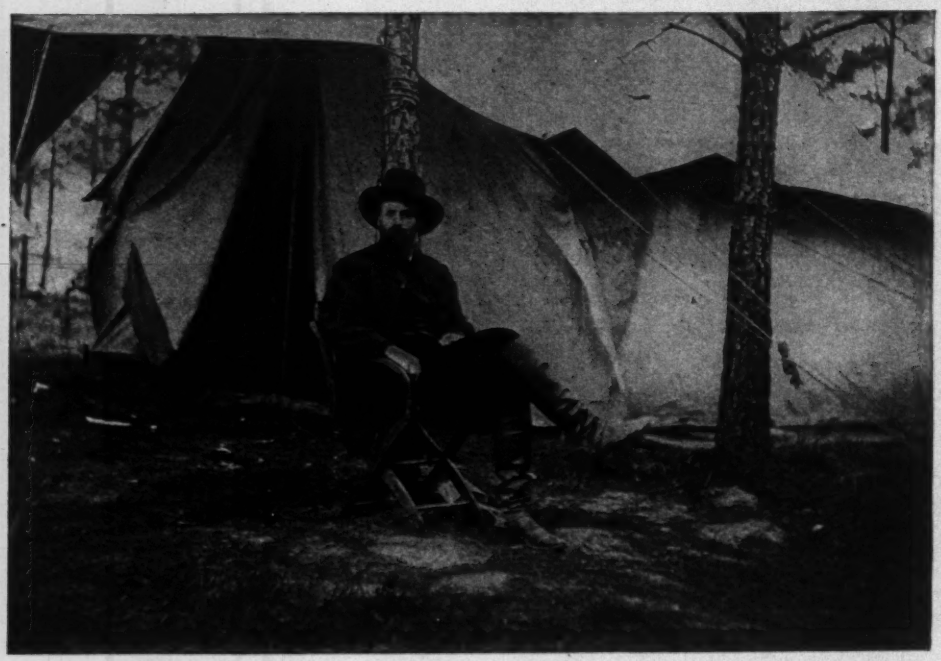
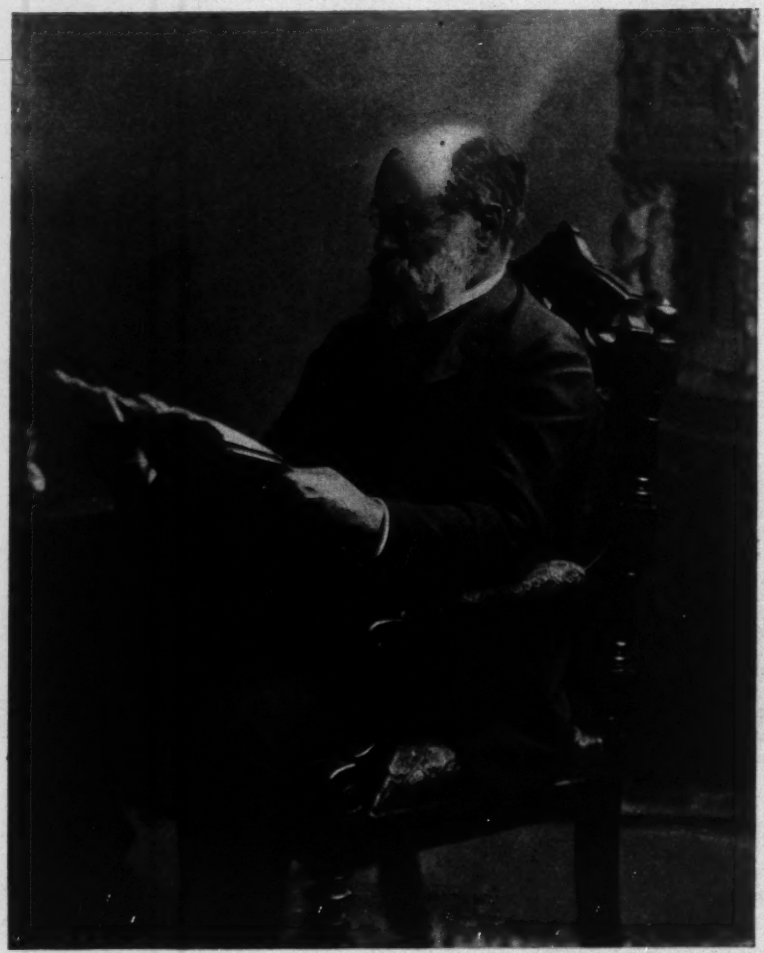


MR. DANA BEFORE GRANT'S HEADQUARTERS AT SPOTTSYLVANIA, 1864. AGE 44.



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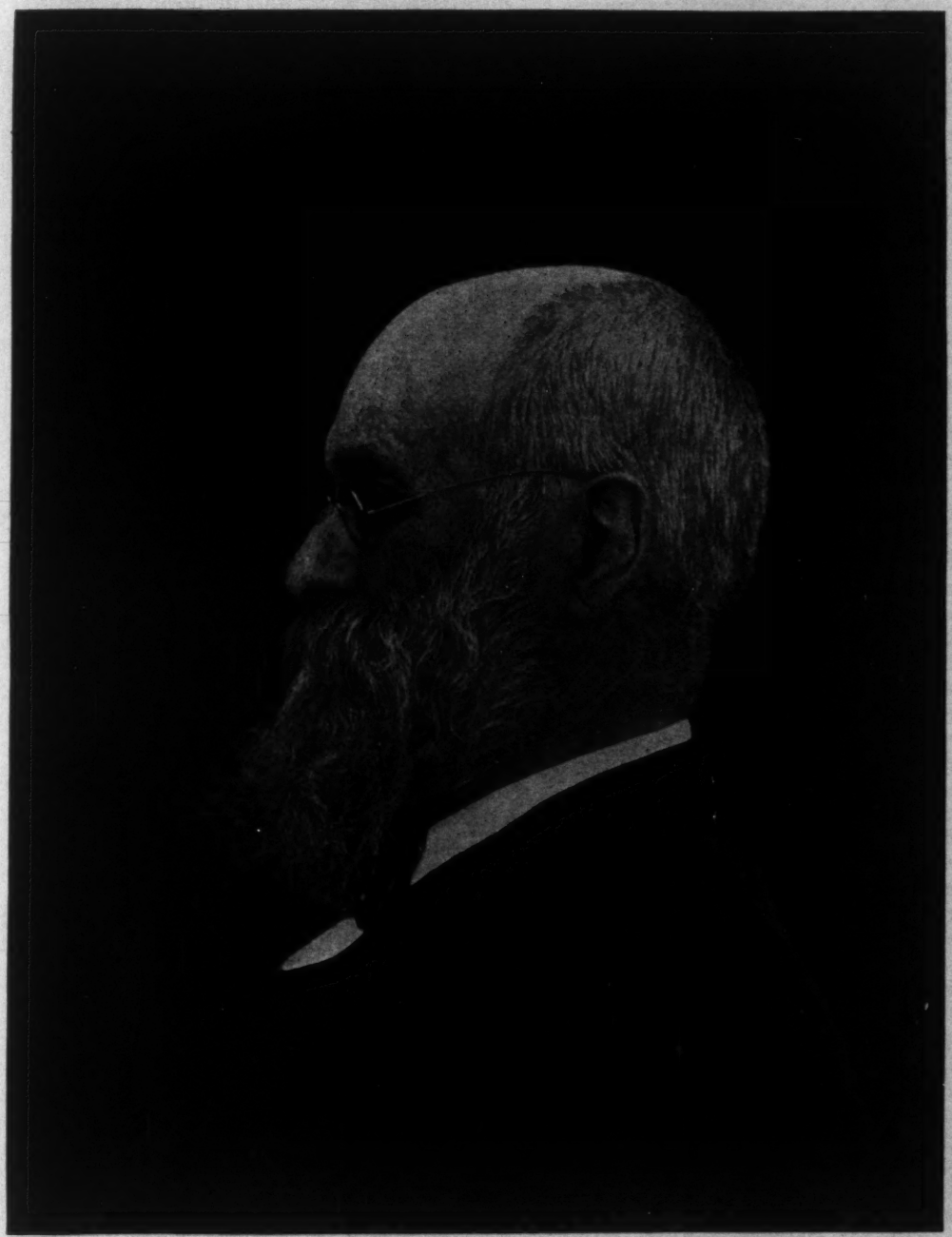

MR. DANA AT THE PRESENT DAY. FROM A PHOTOGRAPH TAKEN BY HIS SON, MR. PAUL DANA.

SWEETHEARTS.

By A. Conan Doyle.

IT is ill for the general practitioner who sits among his patients both morning and evening, and sees them in their homes between, to steal time for one little daily breath of cleanly air. To win it he must slip early from his bed and walk out between shuttered shops when it is chill but very clear, and all things are sharply outlined, as in a frost. It is an hour that has a charm of its own, when, but for a postman or a milkman, one has the pavement to one's self, and even the most common thing takes an ever-recurring freshness, as though causeway and lamp and signboard had all wakened to the new day. Then even an inland city may seem beautiful, and bear virtue in its smoke-tainted air.

But it was by the sea that I lived, in a town that was unlovely enough were it not for its glorious neighbor. And who cares for the town when one can sit on the bench at the headland, and look out over the huge blue bay and the yellow cimeter that curves before it! I loved it when its great face was freckled with the fishing boats, and I loved it when the big ships went past, far out, a little hillock of white and no hull, with topsails curved like a bodice, so stately and demure. But most of all I loved it when no trace of man marred the majesty of nature, and when the sunbursts slanted down on it from between the drifting rain clouds. Then I have seen the farther edge draped in the gauze of the driving rain, with its thin gray shading under the clouds, while my headland was golden, and the sun gleamed upon the breakers and struck deep through the green waves beyond, showing up the purple patches where the beds of seaweed are lying. Such a morning as that, with the wind in his hair, and the spray on his lips, and the cry of the eddying gulls in his ear, may send a man back braced afresh to the reek of a sickroom and the dead drab weariness of practice.

It was on such another day that I first saw my old man. He came to my bench just as I was leaving it. My eye must have picked him out even in a crowded street, for he was a man of large frame and fine presence, with something of distinction in the set of his lip and the poise of his head. He limped up the winding path, leaning heavily on his stick, as though those great shoulders had become too much at last for the failing limbs that bore them. As he approached my eyes caught nature's danger signal, that faint bluish tinge in nose and lip which tells of a laboring heart.

"The brae is a little trying, sir," said I. "Speaking as a physician, I should say that you would do well to rest here before you go farther."

He inclined his head in a stately old-world fashion and seated himself upon the bench. Seeing that he had no wish to speak I was silent also, but I could not help watching him out of the corner of my eyes. For he was such a wonderful survival of the early half of the century, with his low-crowned, curly-brimmed hat, his black satin tie, which fastened with a buckle at the back, and, above all, his large, fleshy, clean-shaven face, shot with its mesh of wrinkles. Those eyes, ere they had grown dim, had looked out from the box-seat of mail coaches, and had seen the knots of navvies as they toiled on the brown embankments. Those lips had smiled over the first number of "Pickwick," and had gossiped of the promising young man who wrote them. The face itself was a seventy-year almanac, and every seam an entry upon it, where public as well as private sorrow left its trace. That pucker on the forehead stood for the Mutiny, perhaps; that line of care for the Crimean winter, it may be; and that last little sheaf of wrinkles, as my fancy hoped, for the death of Gordon. And so, as I dreamed in my foolish way, the old gentle-

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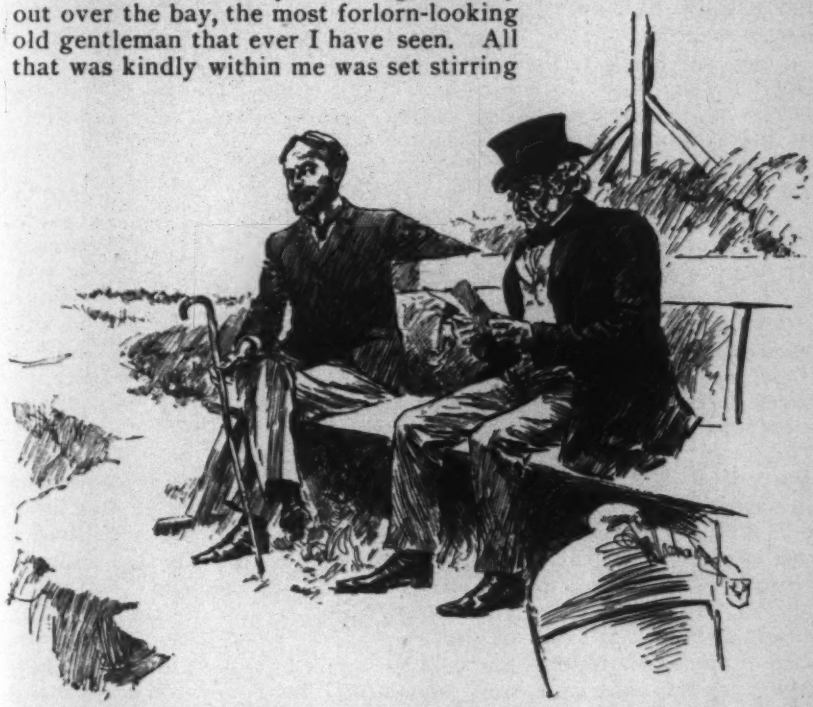
man with the shining stock was gone, and it was seventy years of a great nation's life that took shape before me on the headland in the morning.

But he soon brought me back to earth again. As he recovered his breath he took a letter out of his pocket, and, putting on a pair of horn-rimmed eyeglasses, he read it through very carefully. Without any design of playing the spy I could not help observing that it was in a woman's hand. When he had finished it he read it again, and then sat with the corners of his mouth drawn down and his eyes staring vacantly out over the bay, the most forlorn-looking old gentleman that ever I have seen. All that was kindly within me was set stirring



I COULD NOT HELP OBSERVING THAT IT WAS IN A WOMAN'S HAND.

by that wistful face, but I knew that he was in no humor for talk, and so, at last, with my breakfast and my patients calling me, I left him on the bench and started for home.

I never gave him another thought until the next morning, when, at the same hour, he turned up upon the headland, and shared the bench which I had been accustomed to look upon as my own. He bowed again before sitting down, but was no more inclined than before to enter into conversation. There had been a change in him during the last twenty-four hours, and all for the worse. The face seemed more heavy and more wrinkled, while that ominous venous tinge was more pronounced as he panted up the hill. The clean lines of his cheek and chin were marred by a day's growth of gray stubble, and his large, shapely head had lost something of the brave carriage which had struck me when first I glanced at him. He had a letter there, the same, or another, but still in a woman's hand, and over this he was moping and mumbling in his senile fashion, with his brow puckered, and the corners of his mouth drawn down like those of a fretting child. So I left him with a vague wonder as to who he might be, and why a single spring day should have wrought such a change upon him.

So interested was I that next morning I was on the lookout for him. Sure enough, at the same hour I saw him coming up the hill, but very slowly, with a bent back and a heavy head. It was shocking to me to see the change in him as he approached.

"I am afraid that our air does not agree with you, sir," I ventured to remark.

But it was as though he had no heart for talk. He tried, as I thought, to make some fitting reply, but it slurred off into a mumble and silence. How bent and weak and old he seemed—ten years older at the least than when first I had seen him! It went to my heart to see this sweet old fellow wasting away before my eyes. There was the eternal letter, which he unfolded with his shaking fingers. Who was this woman whose words moved him so? Some daughter, perhaps, or granddaughter, who should have been the light of his home instead of —— I smiled to find how bitter I was growing, and how swiftly I was weaving a romance round an unshaven old man and his correspondence. Yet all day he lingered in my mind, and I had fitful glimpses of those two trembling, blue-veined, knuckly hands, with the paper rustling between them.

I had hardly hoped to see him again.

Another day's decline must, I thought, hold him to his room, if not to his bed. Great, then, was my surprise when, as I approached my bench, I saw that he was already there. But as I came up to him I could scarce be sure that it was indeed the same man. There were the curly-brimmed hat and the shining stock and the horn glasses, but where were the stoop and the gray-stubbled, pitiable face? He was clean-shaven and firm-lipped, with a bright eye, and a head that poised itself upon his shoulders like an eagle on a rock. His back was as straight and square as a grenadier's, and he switched at the pebbles with his stick in his exuberant vitality. In the buttonhole of his well-brushed black coat there glinted a golden blossom, and the corner of a dainty red silk handkerchief lapped over from his breast pocket. He might have been the eldest son of the weary creature who had sat there the morning before.

"Good morning, sir, good morning!" he cried, with a merry waggle of his cane.

"Good morning!" I answered; "how beautiful the bay is looking."

"Yes, sir, but you should have seen it just before the sun rose."

"What, you have been here since then?"

"I was here when there was scarce light to see the path."

"You are a very early riser."

"On occasion, sir, on occasion!" He cocked his eye at me as if to gauge whether I were worthy of his confidence. "The fact is, sir, that my wife is coming back to me to-day."

I suppose that my face showed that I did not quite see the force of the explanation. My eyes, too, may have given him assurance of sympathy, for he moved quite close to me and began speaking in a low, confidential voice, as if the matter were of such weight that even the seagulls must be kept out of our counsels.

"Are you a married man, sir?"

"No, I am not."

"Ah, then you cannot quite understand it. My wife and I have been married for nearly fifty years, and we have never been parted, never at all, until now."

"Was it for long?" I asked.

"Yes, sir. This is the fourth day. She had to go to Scotland. A matter of duty, you understand, and the doctors would not let me go. Not that I would have allowed them to stop me, but she was on their side. Now, thank God, it is over, and she may be here at any moment."

"Here!"

"Yes, here. This headland and bench were old friends of ours thirty years ago. The people with whom we stay are not, to tell the truth, very congenial, and we have little privacy among them. That is why we prefer to meet here. I could not be sure which train would bring her, but if she had come by the very earliest she would have found me waiting."

"In that case——" said I, rising.

"No, sir, no," he entreated. "I beg that you will stay. It does not weary you, this domestic talk of mine?"

"On the contrary."

"I have been so driven inward during these last few days! Ah, what a nightmare it has been! She was very good in writing, but still it was dreadful. Perhaps it may seem strange to you that an old fellow like me should feel like this?"

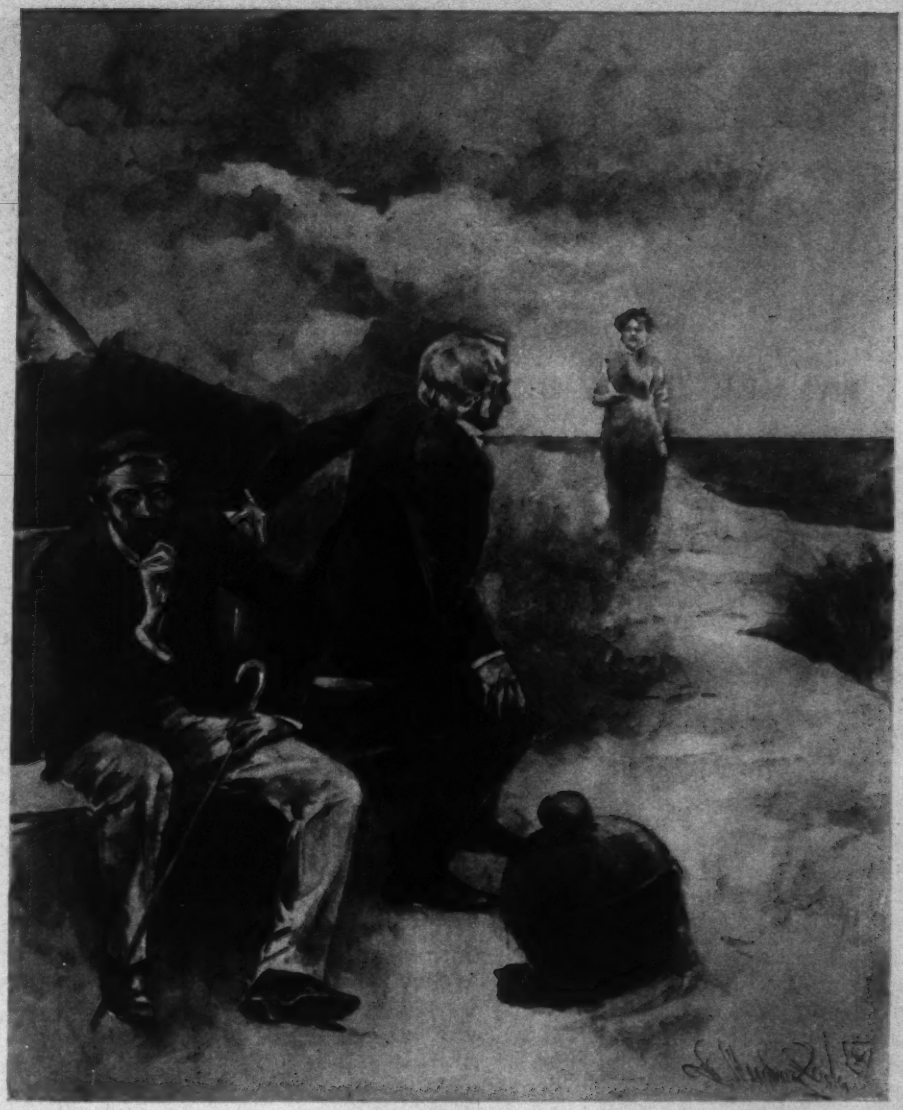
"It is charming."

"No credit to me, sir! There's not a man on this planet but would feel the same if he had the good fortune to be married to such a woman. Perhaps, because you see me like this, and hear me speak of our long life together, you conceive that she is old too." He laughed heartily, and his eyes twinkled at the humor of the idea.

"She's one of those women, you know, who have youth in their hearts, and so it can never be very far from their faces. To me she's just as she was when she first took my hand in hers in '45. A wee little bit stouter, perhaps, but then, if she had a fault as a girl, it was that she was a shade too slender. She was above me in station, you know—I a clerk, and she the daughter of my employer. Oh, it was quite a romance, I give you my word; and I won her, and, somehow, I have never got over the freshness and the wonder of it. To think that that sweet, lovely girl has walked by my side all through life, and that I have been able——"

He stopped suddenly, and I glanced round at him in surprise. He was shaking all over, in every fibre of his great body. His hands were clawing at the woodwork and his feet shuffling on the gravel. I saw what it was. He was trying to rise, but was so excited that he could not. I half extended my hand, but a higher courtesy constrained me to draw it back again and turn my face to the sea. An instant afterward he was up, and hurrying down the path.

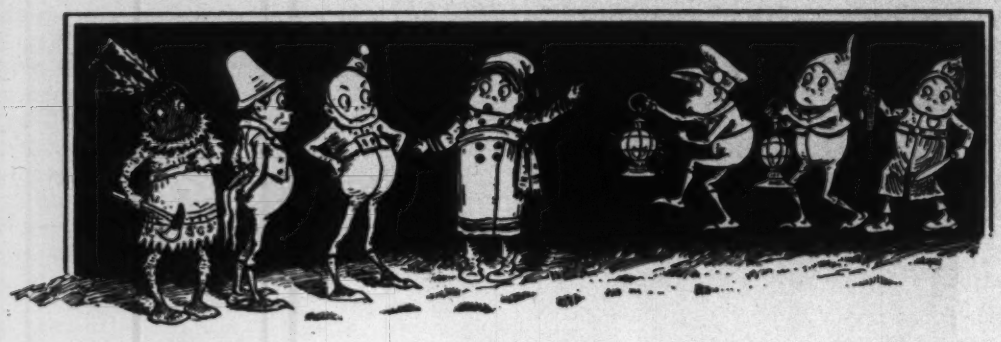
A woman was coming towards us. She was quite close before he had seen her—thirty yards at the utmost. I know not if she had ever been as he described her,



HE WAS TRYING TO RISE, BUT WAS SO EXCITED THAT HE COULD NOT.

or whether it was but some idea which he carried in his brain. The person upon whom I looked was tall, it is true, but she was thick and shapeless, with a ruddy, full-blown face, and a skirt grotesquely gathered up. There was a green ribbon in her hat which jarred upon my eyes, and her blouse-like bodice was full and clumsy. And this was the lovely girl, the ever youthful! My heart sank as I thought how little such a woman might appreciate him, how unworthy she might be of his love.

She came up the path in her solid way, while he staggered along to meet her. Then, as they came together, looking discreetly out of the farthest corner of my eye, I saw that he put out both his hands, like a child when its little journey is done, while she, shrinking from a public caress, took one of them in hers and shook it. As she did so I saw her face, and I was easy in my mind for my old man. God grant that when this hand is shaking, and when this back is bowed, a woman's eyes may look so into mine!

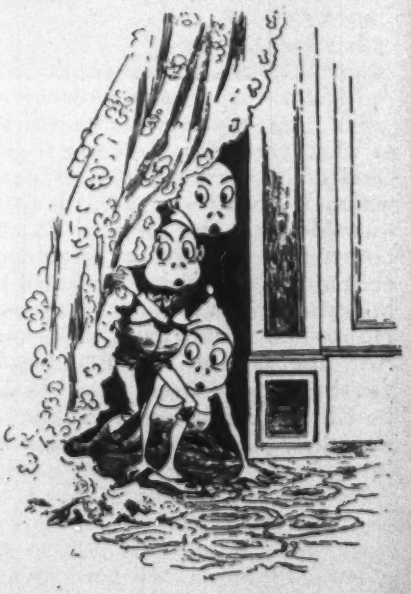


PALMER COX'S BROWNIES ON THE STAGE.

By Ben Teal.

HAVING invaded about all the other civilized and semi-civilized kingdoms of the earth, making friends wherever they went, the Brownies—Mr. Palmer Cox's Brownies—are soon to invade the stage. About a fortnight hence there will be produced at the Park Theatre in Philadelphia a wonderful Brownie play. Two weeks later it will be transferred to the Hollis Street Theatre in Boston, and two weeks later still it will be brought to the Fourteenth Street Theatre, New York, for an indefinite stay.

The Brownies have been pretty near the stage before. Some little time ago, Mr. Cox, with Mr. Malcolm Douglass as his musical collaborator, made them into a little cantata for children, which was produced with great success in the Plymouth Church, Brooklyn, on Mr. Thomas A. Edison's lawn at Llewellyn Park, New Jersey, and in other places. But these were in the nature of amateur performances; and now the Brownies are to be permitted to play a real play, a grown-up play, as it were. Seeing how engaging the little cantata had proved, Mr. Cox, again in conjunction with Mr. Douglass, set to work on a more ambitious production; and the result is "Palmer Cox's Brownies," a musical spectacle in three acts and nine scenes.

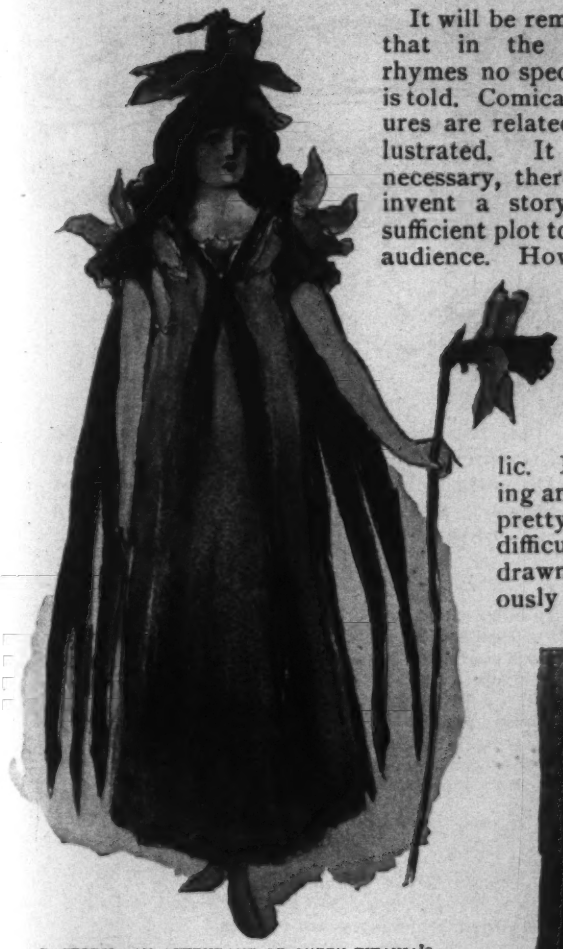


It is a rather interesting fact that as soon as word of Mr. Cox's design got abroad, children in all parts of the country, and by the thousands, began to send him suggestions regarding the treatment of the play and the disposition of the characters. One little girl implored him not to "kill off the Dude." Another, after much more or less useful advice, added, "If you are ever without money, and have no friends, dear Mr. Cox, you can come to my home." A third begged him to send her "a real live Brownie." "I would rather have one than a doll," she wrote, in straggling letters. "If you will give me the Dude, I will learn to sew his clothes."

Note.—All the pictures in this article not under captions are drawn by Mr. Palmer Cox himself, and are copyrighted by him.

Of the pictures under captions, all but the six individually credited to Mr. W. A. C. Pape are from Mr. Reginald B. Birch's original designs for costumes for the play.—Ed. McClure's Magazine.

It will be remembered that in the Brownie rhymes no special story is told. Comical adventures are related and illustrated. It became necessary, therefore, to invent a story having sufficient plot to hold an audience. How far Mr. Cox has succeeded in this can best be told after the appeal has been made to that court of last resort, the public. But I venture to assert that a more charming and graceful story of fairyland, one richer in pretty quips and turns and fancies, it would be difficult to devise. The characters are firmly drawn, admirably differentiated, and harmoniously grouped; while the scenes in which they



DAFFODIL, AN ATTENDANT OF QUEEN TITANIA'S.

move are artistically contrasted, and admit of splendid effects. The music too, though as simple as the theme—which is as it should be—is full of character, feeling, and color, and, I am sure, is destined to become popular. Briefly, the story is as follows:

Titania, queen of the Fays, is betrothed to Prince Florimel, adopted son of the king of the Brownies. The play opens with the Brownies dancing about in joyous anticipation of the marriage; and as they dance they sing the following song:

I.

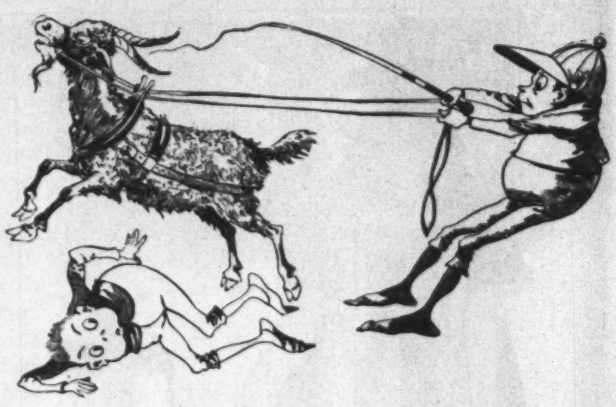
A happy Brownie band are we,
Prepared for daring deeds.
We ramble boldly, far and free,
Wherever fancy leads.
For us the forest spreads its leaves,
And throws a shade below;
For us its screen the ivy weaves,
And ferns and mosses grow.

PRINCE FLORIMEL IN COURT GARB

The children strain their eyes in vain
To see a Brownie sprite,
For those that find the Brownie kind
Must have a second sight.

II.

For us the plantain-leaves are wide
Enough to cover two;
For us the stars at even-tide
Trim all their lamps anew;
And quickly we can slip away
When they forsake the sky,
Or keen, observing children stray
Around with prying eye.
We hide from all, both large and small,
By day as well as night;
Ah, none can see a Brownie wee
Who has not second sight!



The lovers themselves come upon the scene, absorbed in devoted talk with each other; and at sight of them the Brownies cry:

See the happy little bridal pair,
Never was the world so fair.
In each other's eyes
They see Paradise.
May life always be to them as free from care!

THE DEMON USHER.

In the midst of the sport, while the Brownies and Fays dance a minuet, Dame Drusilda, a maiden of uncertain age, comes forward and sings (the others joining in the chorus):

I.

In olden times, my great-grandmother said,
There was far more grace than is witnessed now;
Girls courtesied low, with their skirts outspread,
While a gallant to extremes went in the matter of a bow.
'Twas a pleasant thing to see the Sir Roger Coverley,
Or the minuet so stately and so slow,
While wee shoes clicked time to the music's rhyme,
In the good old days so long ago!

Chorus:

With a touch of lips to fair finger-tips,
As each courtier and his lady bent so low;
Ah, they well knew how, when they made a bow,
In the good old days so long ago!

II.

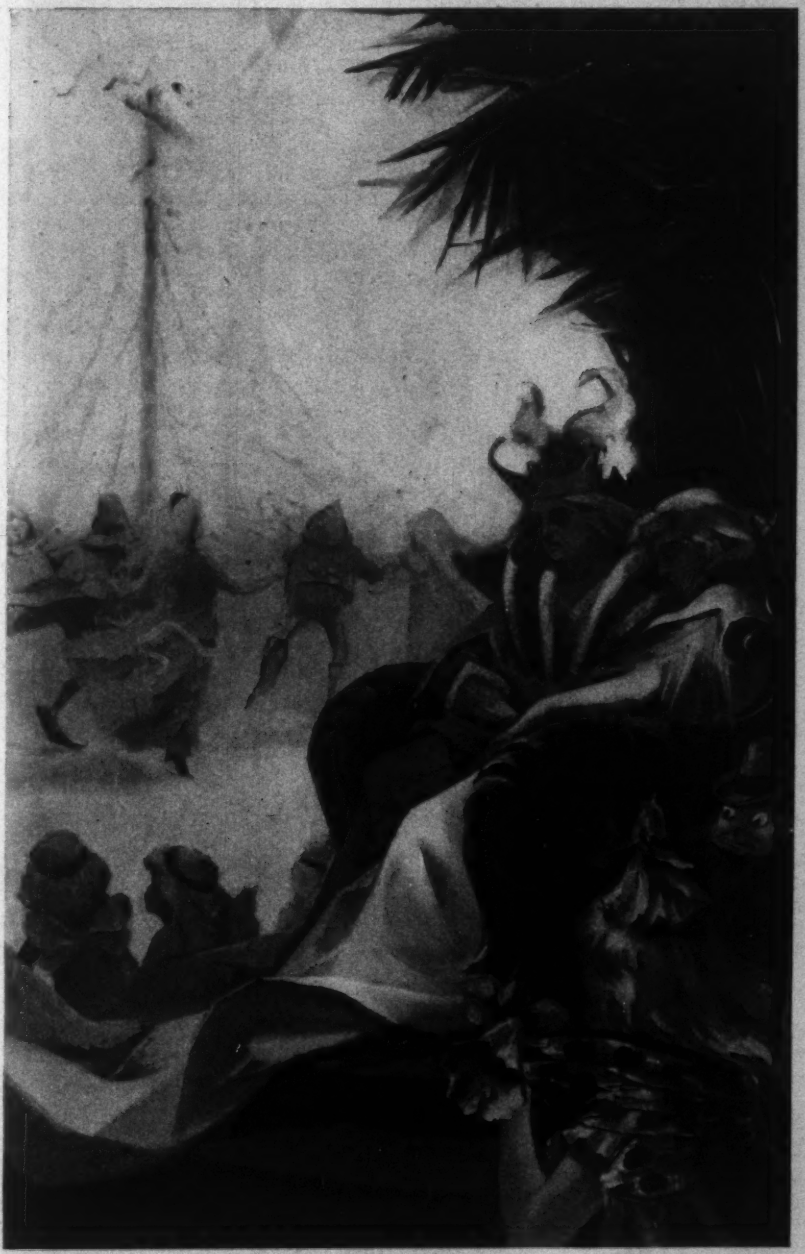
In olden times, my great-grandmother said,
In their mode of dress they showed far more pride;
But years have passed, and they're long since dead,
While the fashions they delighted in have long been laid aside.
In the costumes old and quaint, that an artist likes to paint,
On the waxen floor they made a dainty show,
While eyes spoke to eyes, with the viola's sighs,
In the good old days so long ago!

After this there is a cry for the Maypole dance. As the Brownies take places for the dance, Tom Binnacle, the nautical Brownie, climbs to the top of the pole to place a wreath of flowers. Meanwhile J. Chappie Goodforme, the Dude, drawing Prince

Florimel aside, whispers something in his ear, and this bit of talk ensues:

Prince Florimel: I beg pardon, but I didn't quite catch what you said.

J. Chappie whispers again.

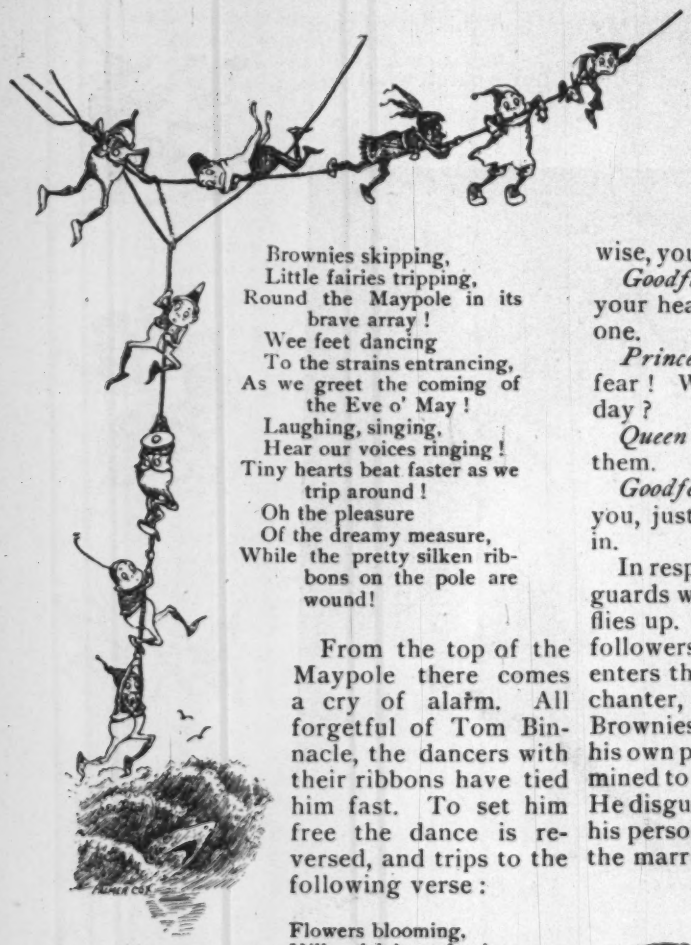


PRINCE FLORIMEL AND QUEEN TITANIA WATCHING THE MAYPOLE DANCE. DRAWN BY W. A. C. PAPE.

Prince Florimel: Why, certainly. (Takes out a purse and hands the other money.)

Goodforme: Thanks. I want to pay for the wedding-present I sent you.

The Brownies lay hold of the ribbons, and the Maypole dance begins, accompanied by the following song:



Brownies skipping,
Little fairies tripping,
Round the Maypole in its brave array!
Wee feet dancing
To the strains entrancing,
As we greet the coming of the Eve o' May!
Laughing, singing,
Hear our voices ringing!
Tiny hearts beat faster as we trip around!
Oh the pleasure
Of the dreamy measure,
While the pretty silken ribbons on the pole are wound!

From the top of the Maypole there comes a cry of alarm. All forgetful of Tom Binnacle, the dancers with their ribbons have tied him fast. To set him free the dance is reversed, and trips to the following verse:

Flowers blooming,
Hill and dale perfuming,
Weave them for your sweethearts into garlands gay;
Spring brings gladness,
With no trace of sadness;
All the world's a garden in the time o' May.
Smile then, brightly,
Take life's troubles lightly,
Gather all the rosebuds that you see around.
Oh the pleasure
Of the dreamy measure,
While the pretty ribbons on the pole are all unwound!

While these Eve o' May festivities are at their height, a loud knocking is heard at the outer gates of the palace. All is quickly hushed within; mute wonder succeeds loud laughter. The knocking continues, and there is hurried conference.

Prince Florimel: Shall we admit them?

J. Chappie Goodforme (while the tremendous knocking is heard again): It looks as if they'd admit themselves.

Count Rolando: I don't like the rude manner of their approach.

Goodforme: They ought to have sent in their cards.

Sir Tomalin: It would be unwise, your Highness, to grant their request.

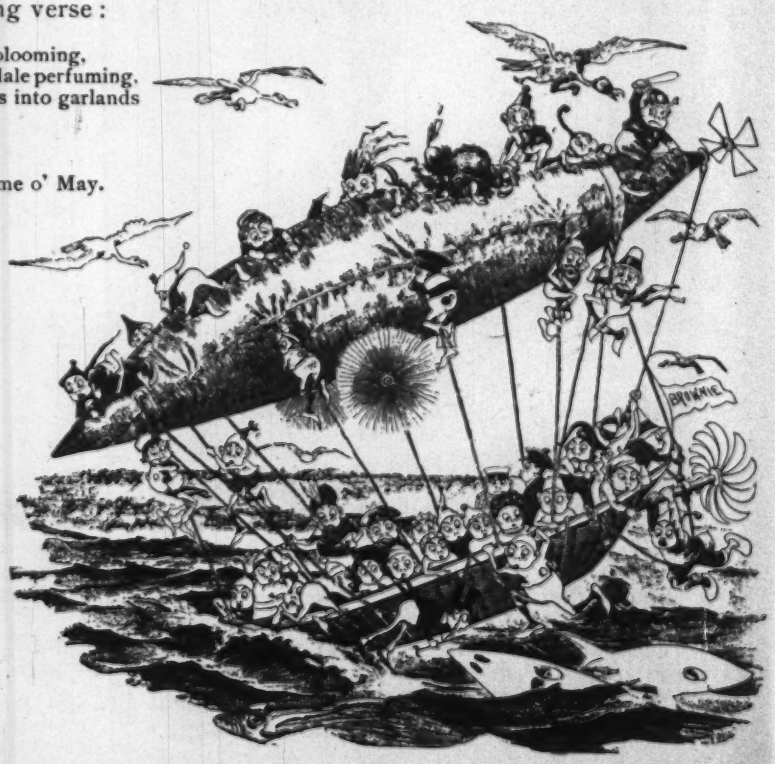
Goodforme: Tell them the doctor says your heart's affected and you can't see any one.

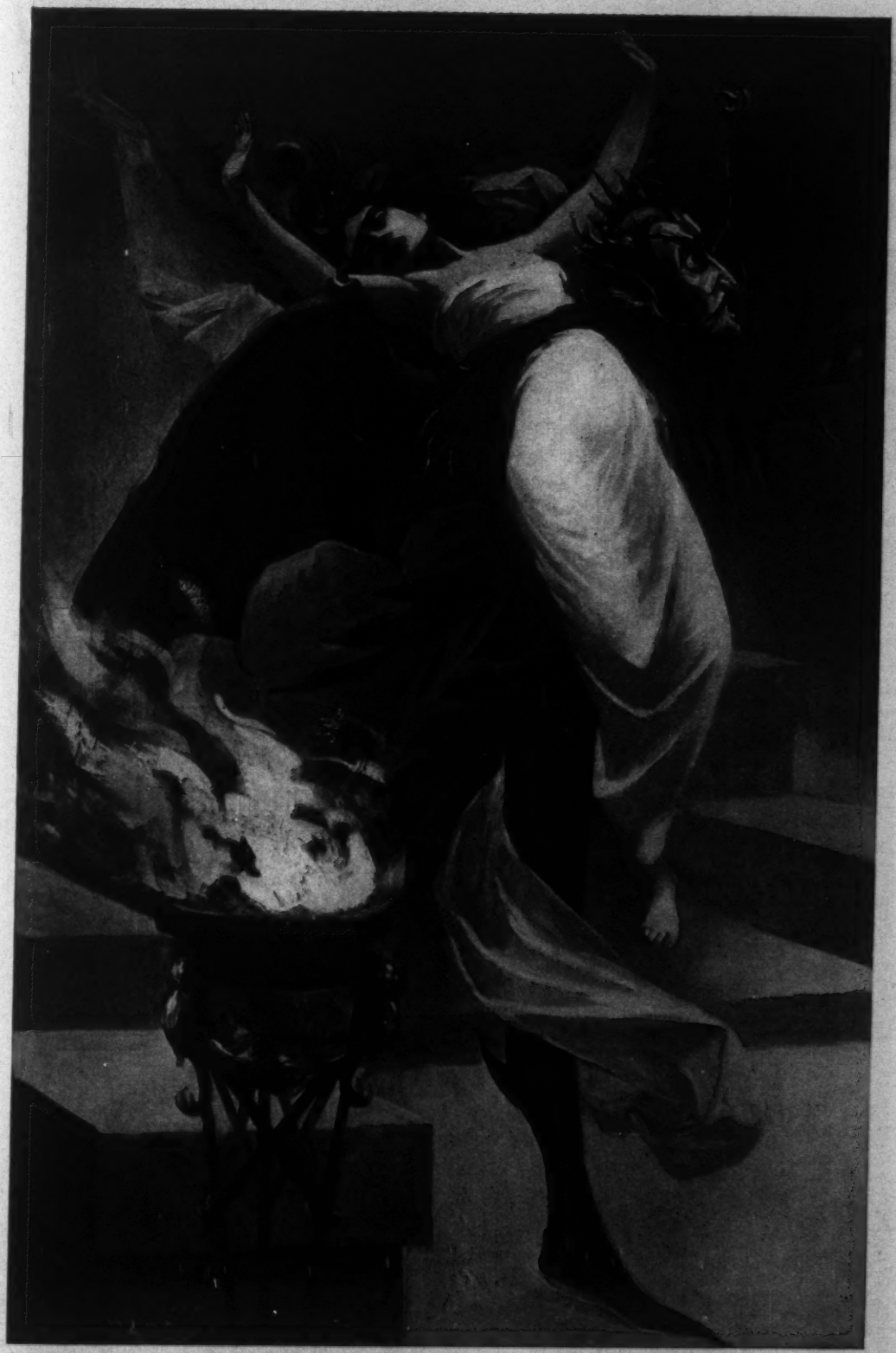
Prince Florimel: Oh, there's nothing to fear! Who would molest us on this happy day?

Queen Titania: None, my love. Admit them.

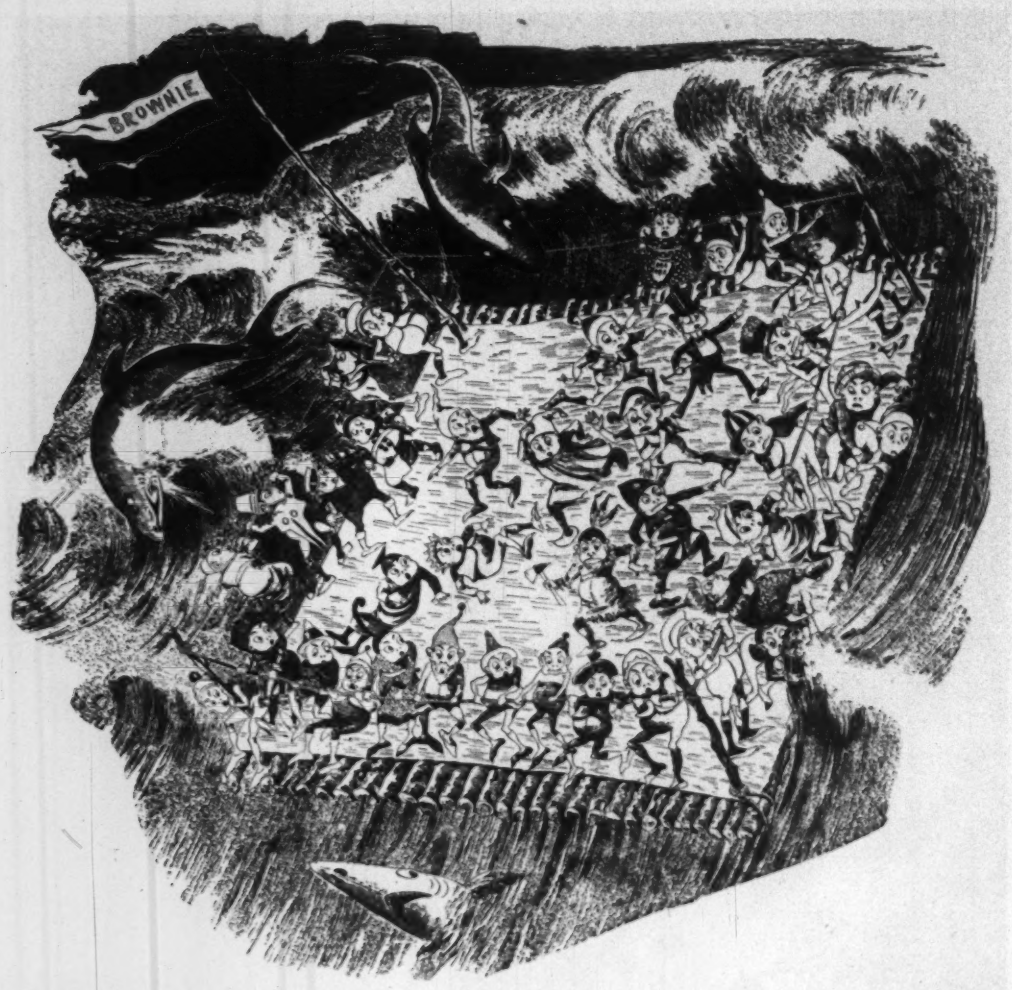
Goodforme: Well, if it is all the same to you, just let me out before you let them in.

In response to a royal command, the fairy guards wave their wands and the portcullis flies up. At the head of a cavalcade of his followers, all, as well as himself, disguised, enters the mighty Dragonfel, a wicked enchanter, who, foreseeing in a union of the Brownies and Fays a "trust" dangerous to his own profitable monopoly in evil, is determined to prevent the approaching marriage. He disguises his design, however, along with his person, and avows that, having heard of the marriage, he and his friends have come





DRAGONFEL CARRYING OFF QUEEN TITANIA. DRAWN BY W. A. C. PAPE.



to tender congratulations and wedding-presents. The unsuspecting Brownies and Fays extend the visitors a cordial welcome, accept their gifts, and invite them to view the marriage ceremony. The festivities are resumed, and, to share in them, the king of the Brownies, Stanislaus, and his whole standing army, a force just four strong,

come in. The king is a sovereign of most pleasant and original ways. At his entrance he announces (to a tune in merry keeping with the words):

I'm ruler of the Brownie Band,
Most favored of personages;
I sway my sceptre o'er a land
Not found upon hist'ry's pages.

I take my nightly promenade
By Anarchists unmolested;
On me no bomb or hand grenade
Has ever by them been tested.

If you could only see me dine,
You'd find me extremely placid;
I never fear a dish of mine
Is seasoned with prussic acid.

To this the Brownies answer in chorus, "Oh, you're all right!" By "Eh?" and "I didn't catch it quite," the king wrings from them a second assurance to the same effect, and then, resuming his song, continues:

I need no sabre, lance, or spear,
To guard me whene'er I slumber.
My people kneel, but not through fear;
Love governs the entire number.

My slightest wish they all obey;
I never use any axes;
I always let them have their way;
They don't have to pay high taxes.

No undertaker need apply;
I'm not for embalmment crazy.
My subjects cry, as I pass by,
"The Brownie king is a daisy."

The song ended, he draws Prince Florimel, who at marriage will succeed him as king, aside for a word or two of friendly advice. "Don't try to raise the tax on tea," he urges, "or build a Panama canal, or monkey with Queen Lil, and you're all right."

Prince Florimel: Rest assured I shall not involve myself.

King: And don't permit your subjects to grow too familiar with you. Don't let them call you "Your Royal Door-knobs" or "Your Kingly Jags!" You'd better avoid "jags" altogether. You mustn't be too *dee rigueur*, but just hold them off, as it were.

He finds abundant business awaiting him. For one thing, the Standing Army fall into revolt. As one man they declare, "We're tired of being the Standing Army." The king meets the crisis with ready sagacity.

"Then sit down and rest," he commands; adding, "You are terrible in all positions."

Suddenly there breaks in on the business and the merry-making a wild alarm from the castle bells; and the Fays, distracted and in consternation, come trooping in with the news that the queen and her personal attendants have been abducted. Suspicion immediately falls on the fair-spoken strangers; for they, too, it is found, have disappeared. On the distant horizon line a tiny sail is seen. King Stanislaus suggests:

We'll build a raft with magic sleight,
And brave the sea ere morning's light.

The Brownies respond heartily: "A raft! a raft! Let's build a raft!" But the voyage proves a most stormy and disastrous one. While perils upon perils' head accumulate, a prayer is heard above the fury of the gale. The Brownies sing:

THE RESCUE OF THE BROWNIE DUDE. DRAWN BY W. A. C. PAPE.

Goddess of mirth, we pray,
Guide us upon our way ;
Watch o'er a Brownie crew
Tossed on the waters blue.
Speed thou the raft we've made,
Unto our sweet queen's aid !
Help us undo the wicked spell
Of terrible Dragonfel !

QUEEN TITANIA AND HER TRAIN-BEARERS.

The prayer avails. In the distance, rising from the mighty depths, Neptune in his chariot, driving his sea-horses, with nymphs as attendants, and the Goddess of Mirth in the prow, appears. He quiets the troubled waters and bids the storm be still. In the wake of his chariot the Brownies proceed to the country of the monster Dragonfel. And their talk and song show them to be, for all their trials, in excellent heart at their landing.

Tom Binnacle : I am one of the crew who sailed on the sea blue
In a raft that we made in one night—
All : One night.
Inspector Clubbem : We shaped her bow well to ride over each swell,
And then rigged her and set her sail right—
All : Sail right.
Inspector Clubbem : She was true, she was fine, and could ride on the brine
Like a gull or an albatross stout—
All : 'Tross stout.
J. Chappie Goodforme : But alas for our art, we were not over smart
Who the water-tight bunkers left out—
All : Left out,
Who the water-tight bunkers left out.

DRAGONFEL'S CASTLE UNDER A DRAGON'S GUARD. DRAWN BY W. A. C. PAPE.

In further acknowledgment of the mistakes and perils of the voyage, two of the company sing:

Now, by the sun and moon and Mars,
And all the minor run of stars,
I'll not repeat that sort of game
While I possess the Brownie name.

Nor shall I sail upon the main
In any kind of craft again
That doesn't have a water-tight
Compartment that is working right.

They find themselves in a land full of enchantments. "Even the moon," as Prince Florimel notes, mocks them, showing a Brownie face. They propose a serenade to her, and the king begins:

The sun has a most inconsiderate way
Of shining when he isn't needed, at day.
To Brownies, now, really, that doesn't seem
right.
But you know your business and bob up at night,
The best time of all to appreciate light.
Ting-a-ling-ting, etc.

The Man in the Moon himself comes into the sport finally, and sings:

Hey diddle diddle, the cat and the fiddle;
The cow jumped over the moon;
The little dog laughed to see such sport,
And the dish ran away with the spoon.

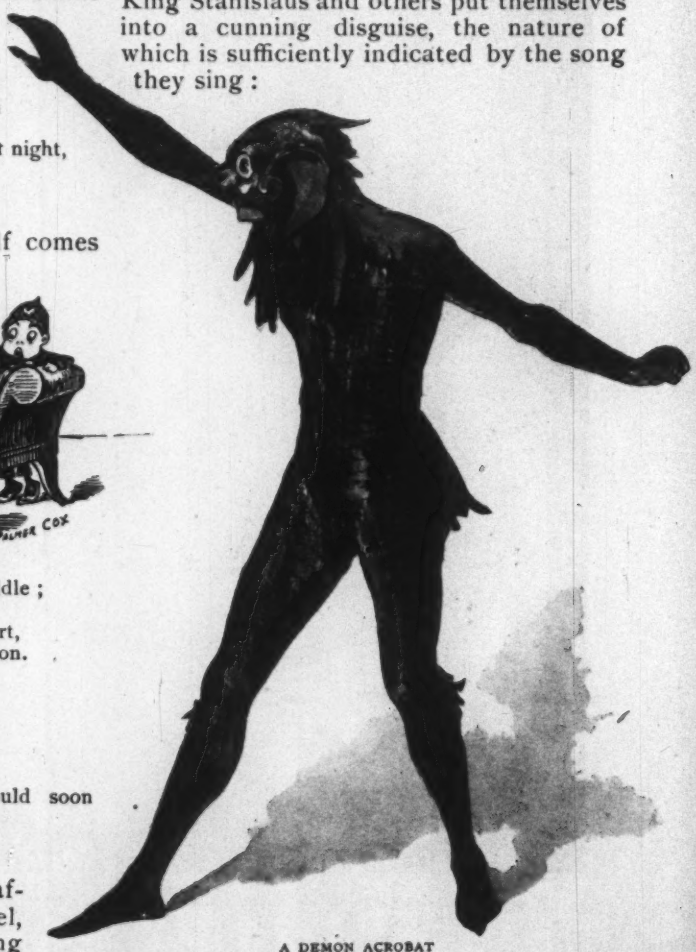
And the Brownies reply:

Hello, hello, up there, old fellow,
How did the cow jump so high?
Although a good jumper, that feat would soon
stump her,
Unless you were low in the sky.

Meanwhile they come upon an afflicting sight. They see Dragonfel, within his enchanted castle, paying his devotions to the captive queen. He seeks to commend himself to her liking in these terms:

I'm not a fav'rite in society,
In vice I've reached the thirty-second degree.
If you should want a sample
Of a horrible example
For a Y. M. C. A. meeting, come to me.
I don't go to Sunday-school,
Or mind anybody's rule;
I never put a penny in the contribution plate;
I cheat when I play croquet
And use words I shouldn't say,—
In everything I oughtn't to do I'm always up
to date.

In order to gain admission to the castle, King Stanislaus and others put themselves into a cunning disguise, the nature of which is sufficiently indicated by the song they sing:



A DEMON ACROBAT

NEPTUNE AND THE GODDESS OF MIRTH IN THEIR SEA CHARIOT. DRAWN BY W. A. C. PAPE.

INSPECTOR CLUBBEM, DAME DRUSILDA, AND THE DUDE. DRAWN BY W. A. C. PAPE.

Ve vas a habby Charmin band,
Und on der shtreed each tay ve shtand,
Und dry our pest der blease der ear
Mit musig beoples liges der hear.
Ach himmel! You shoult hear us blay
Dot song, "Ta-ra-ra-poom-te-ay!"
"Der Bicdure Durned Dowards der Vall,"
"Shweed Violeds"—ve know dem all.

The deception, however, fails. A combat follows, in which the Brownies triumph; but Dragonfel invokes the assistance of Vulcan, and there comes an earthquake that brings down the palace walls. Meanwhile a volcano has gone into eruption, and in the natural excitement of the moment Dragonfel contrives to escape with Queen Titania to his mines. The Brownies are left in the path of the swift descending lava. Prince Florimel appeals to Euphrosyne to match her might against that of Vulcan, and the course of the lava is diverted, and the Brownies are saved. Then they renew the search for Queen Titania. Day dawns, and Prince Florimel urges his companions to still continue their search, though the mystic powers of the Brownies vanish with the night. Dragonfel, knowing of this weakness in them, entraps them and sets them to work in the mines. There they toil and slave; but, true to the Brownie instinct, they make merry

even in the depths of the earth and while engaged in the hardest labor.

Down deep in the mines, where the sun never shines,
Surrounded by wealth untold,
Like slaves we must toil, as we delve and moil,
In our wearisome search for gold.
The pick's ringing song we must hear all night long,
Where the metal so shining gleams,
And when day's begun, and our work is done,
It haunts us all in our dreams.

The song done, they rest a moment on their picks, and King Stanislaus says:

"Oh, dear! I wish we all had the measles."

"Why, your Majesty?" cry all in great surprise.

"So we could break out, of course," easily answers the king.

A good deal of playful talk and

NEPTUNE.

THE MIGHTY DRAGONFEL.

song follows, and then King Stanislaus sings:

A lady will wear a high hat at the play—
A Brownie would never do that!
The man just behind her unkind things will say—
A Brownie would never do that!
Still it's no excuse for his making a row
Of people stand up to allow him to go
Out after each act for a cocktail or so—
A Brownie would never do that!

A man drops a coin that is punched in the plate—
A Brownie would never do that!
A guard on the "L" in your face slams the gate—
A Brownie would never do that!
A doctor is careful to give harmless pills
To patients that always are prompt to pay bills,
But sends the poor debtor to green Cypress Hills—
A Brownie would never do that!

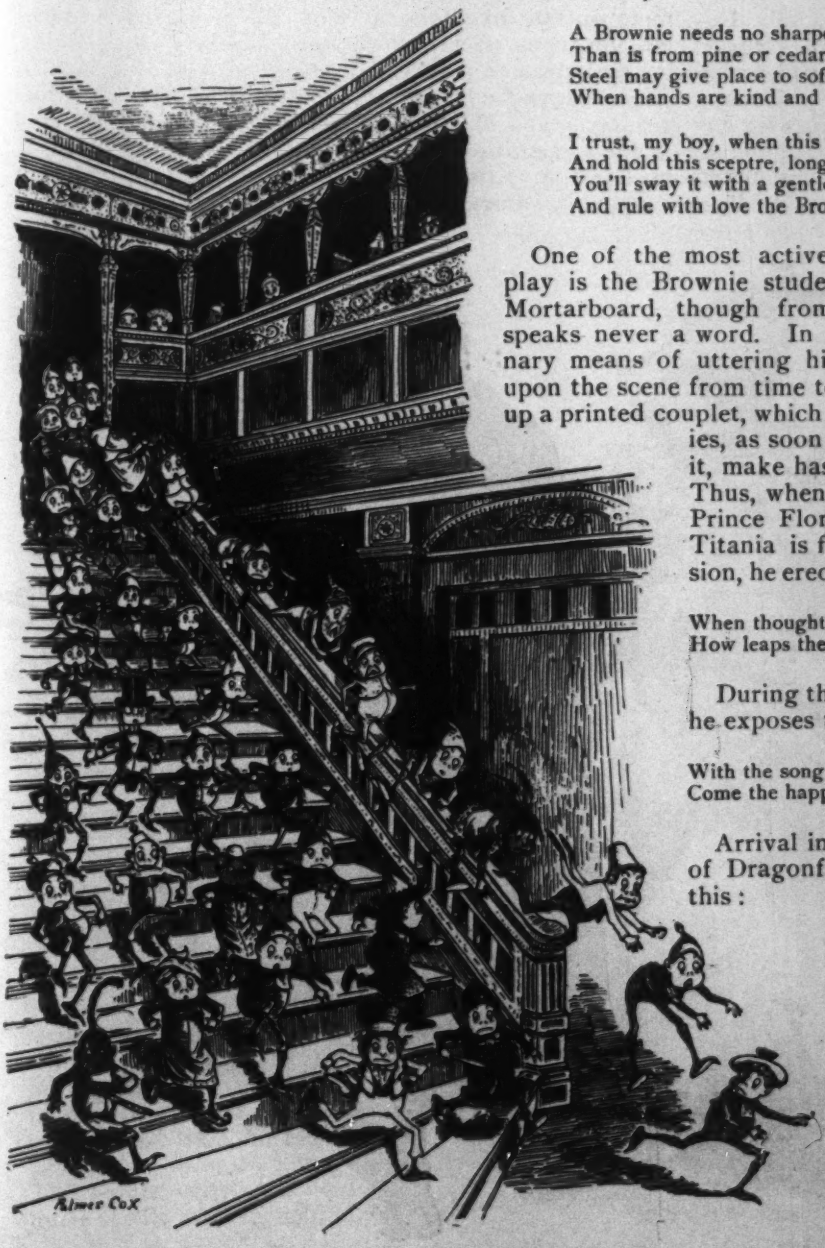
The Brownies triumph completely in the end, as Brownies should. When, at last, their foes are all

put to rout, and Queen Titania is happily restored to Prince Florimel, a shade of reflection falls on Stanislaus, and he is moved to say: "Ah, now I see I'll soon have to call on a hatter and leave my measure for something to wear instead of this crown." Then he adds:

Prince Florimel, this friendly hint
Upon your youthful mind imprint:
I wear a sword, but, as you see,
'Tis more for show than butchery.

A Brownie needs no sharper blade
Than is from pine or cedar made;
Steel may give place to softest wood,
When hands are kind and hearts are good.

I trust, my boy, when this you wear,
And hold this sceptre, long my care,
You'll sway it with a gentle hand,
And rule with love the Brownie Band.



One of the most active persons in the play is the Brownie student, Sir Reginald Mortarboard, though from first to last he speaks never a word. In lieu of the ordinary means of uttering his mind, he steals upon the scene from time to time, and tacks up a printed couplet, which the other Brownies, as soon as they discover it, make haste to tear down. Thus, when the marriage of Prince Florimel and Queen Titania is first under discussion, he erects this sentiment:

When thoughts of marriage start,
How leaps the female heart!

During the Maypole dance he exposes the following:

With the song birds and the flowers
Come the happiest of hours.

Arrival in the strange land of Dragonfel moves him to this:

In countries new or old
Love never should grow cold.

And as the play draws to an end he puts forth this:

Good night to one and all,
Within this spacious hall.

In a mere outline like this, no idea can be conveyed of the varied and gorgeous effects which music, movement, costume, and scenery combine to produce in the acted play. It will be one of the finest spectacles ever presented on the stage. Nor is any idea conveyed of the immense cost, in time, labor, and money, of the preparation of such a piece. When Messrs. C. B. Jefferson, Klaw & Erlanger finally determined to present "Palmer Cox's Brownies," I was engaged by them to superin-

VULCAN.

A FAY.

tend the stage production. That was months ago. First I studied carefully, critically, every act, incident, and situation, noting proposed changes and revisions. Then consultation succeeded consultation, day after day, running sometimes far into the night, between the author, the composer, and myself. Each revision practically resulted in a rewriting, and the play has been rewritten three times since its acceptance. At last the book and score were in such shape as to justify the beginning of what may be termed the practical work of the production, and for this it was necessary to secure the most expert artists and artisans.

For the scenery Mr. Charles Getz, who has been identified with the most magnificent spectacular productions in this country, was selected. Without loss of time, he began what has proved the arduous labor of months. The palace courtyard of Queen Titania; the raft in mid-ocean; the enchanted country of Dragonfel, where electricity is employed with marvellous effect; the demon-castle; the mines—these, and others, are splendid revelations of the scenic painter's art. At the same time Mr. Robert Cutler, whose years of service in pantomime and spectacle entitle him to a foremost rank,

PRINCE FLORIMEL IN TRAVELLING GARB.

was busily engaged upon the properties and trick-work, till his great shops, crowded with the strange, fanciful shapes that grew beneath his skilled touch, came to resemble fairy-land and demon-land combined.

Electricians were called on for devices which in the suggestion made them cry, "Impossible!" "With the Brownies nothing is impossible," was the energetic response. And on this principle they have been working, too, until the apparently impossible has been achieved.

Mr. Reginald B. Birch, the illustrator of "Little Lord Fauntleroy," was meanwhile making designs of fairies and demons which were laid before the costumer, Mr. Paul Vernon, with the injunction, "Make something that has never yet been seen on the stage;" an injunction which Mr. Vernon has followed to the letter. The shops have been scoured for those exquisite butterfly hues shown in Mr. Birch's dainty water-color drawings, the exact shades of which he insisted he

VIOLET, AN ATTENDANT OF QUEEN TITANIA'S.

must have. Materials of marvellous changeable hues have been secured in Paris, London, and New York. Of course, the Brownies will appear in the quaint, familiar garb that is known to every one. The dances are the creation of Mr. Carl Marwig, the most skilled ballet master in the country.

All this is in addition to the work of organizing the company; and this last, for many reasons, has been no easy task. For the Fays, pretty and attractive young women, skilful in both singing and dancing, were required; for the Brownies, exceptionally little people; and for the Demons, people tall and large. One hundred people have been employed, and a great deal of patience and time were necessary to meet the cast conditions. The work has been accomplished, I think, in a manner that will prove in every way attractive and satisfying to the public. At any rate, no pains and no money have been spared to present Mr. Cox's Brownie play amply and suitably; and from beginning to end the performance will be thoroughly sweet and wholesome.

AN OLD ENGLISH SONG.

By Thomas Dekker (about 1600).

Art thou poor, yet hast thou golden slumbers?
O sweet content!
Art thou rich, yet is thy mind perplexéd?
O punishment!
Dost thou laugh to see how fools are vexéd
To add to golden numbers, golden numbers?
O sweet content! O sweet, O sweet content!

Work apace, apace, apace, apace;
Honest labor bears a lovely face;
Then hey nonny nonny, hey nonny nonny!

Canst drink the waters of the crispéd spring?
O sweet content!
Swimm'st thou in wealth, yet sink'st in thine own tears?
O punishment!
Then he that patiently want's burden bears
No burden bears, but is a king, a king!
O sweet content, O sweet, O sweet content!

FLYING THROUGH FLAMES.

By Cy Warman.

FOREST fires had been raging in the mountains for more than a month. The passengers were peering from the car-windows, watching the red lights leap from tree to tree, leaving the erstwhile green-garbed hills a bleak and blackened waste.

The travelling passenger agent had held the maiden from Normal out on the rear platform all the way up the mountain, soothing her fears and showing her the sights and scenes along the line. "Over there," he said, "is the sunny San Luis Valley, and those high hills—that snowy range, when seen in the golden glow of sunset was called by the Spaniards *Sangre de Cristo*, the blood of Christ. Farther to the south and a little west is the great silver camp of Creede, where it is always afternoon.

"Looking far down the vale you can see the moon-kissed crest of the Spanish range, below whose lofty peaks the archaic cliff-dwellers had their homes. Here to the north, where you see the fire flying from the throbbing throat of a locomotive, is the line that leads to Leadville, whose wondrous wealth is known to all the English-speaking people; yes, even as far south as Texas they have come to talk of Leadville and the mines.

"Now we have reached the crest of the continent, where——"

"Oh, yes, I have seen it!" chimed in the maiden. "It's by Ernest Ingersoll, is it not?"

"No," he replied, "this one is by the Builder of the universe, and, as I was about to say, the water flows this way to the Atlantic, and that way to the Pacific Ocean."

"Why, how very, very funny," said the "schoolmarm;" but the railroad man has never been able to see where the laugh came in. He was making no attempt to be funny; and turning the tourist over to the porter, after assuring her, for the one hundredth time, that accidents were never heard of on Marshall Pass, he said good-night.

The conductor came out from the smoky station, lifted his white light a time or two, the big bell sounded, and the long train began to find and wind its way over the

smooth steel track that should lead from the hoary heights to the verdant vale. And the gentle curves made cradles of the cars, and the happy maiden in high Five dreamed she was at home in her hammock, while the man of the road went peacefully to sleep in upper Six, feeling that he had shown all the wonders of the West to at least one passenger in that train-load of people.

The engineer reached for the rope, and the long, low "toooo toooo-too toot" went out upon the midnight air, and the women folks whispered a little prayer for the weary watcher in the engine cab, placed their precious lives in his left hand, and went to sleep again. The long train creaked and cracked on the sharp corners, and as the last echo of the steam-whistle died away in the distant hills, slid swiftly from the short tangent and was swallowed up by a snowshed.

At that moment the fire leaped from a clump of pinions, and the sun-dried snow-shed flashed aflame like a bunch of grass in a prairie fire.

It had required the united efforts of three locomotives to haul the train up the hill, and the engineer knew that to stop was to perish in the fire, as he was utterly unable to back out of the burning building.

That is why it appeared to the passengers that all at once every tie that bound this human-burdened train to the track parted, and the mad train began to fall down the mountain. Away they went like the wind. On they went through the fiery furnace like a frightened spirit flying from the hearth of hell. The enginemen were almost suffocated in the cab, while the paint was peeled from the Pullman cars as a light snow is swallowed by the burning sun on a sandy desert.

At last the light is gone, they dash out into the night—out into the pure mountain air; the brakes are applied, the speed is slackened, the women are still frightened, but the conductor assures them that the danger is past.

Now they can look back and see the burning sheds falling. The "schoolmarm" shudders as she climbs back to her berth, and an hour later they are all asleep. At Gunnison they get another locomotive, a fresh crew, and the train winds on toward the Pacific slope.

The engine is stabled in her stall at the round-house. The driver walks about her, pats her on the neck, and talks to her as he would to a human being: "Well, old girl, we got through, didn't we? But it was a close call."

THE CAPTURE OF NIAGARA.

By E. Jay Edwards.

CAPITAL is not always timid, though such is the repute it bears. No finer display of business courage was ever made than that exhibited by Peter Cooper, Cyrus W. Field, and a few others, when they staked millions on the experiment of the first Atlantic cable. In a few weeks there will have been completed another enterprise having the commercial use of electricity as its end, which, involving the expenditure of a very great sum of money, furnishes a new illustration that capital can be courageous, at least on occasion; for that work which has been in progress alongside the Niagara waterfall for some four years is, after all, experimental, and the capitalists cannot know until the plant is finished, the tests are made, and the electric power is furnished, whether the undertaking is going to bring them profit, or whether they have paid dearly for their faith

THE PURPOSE OF THE PLANT.

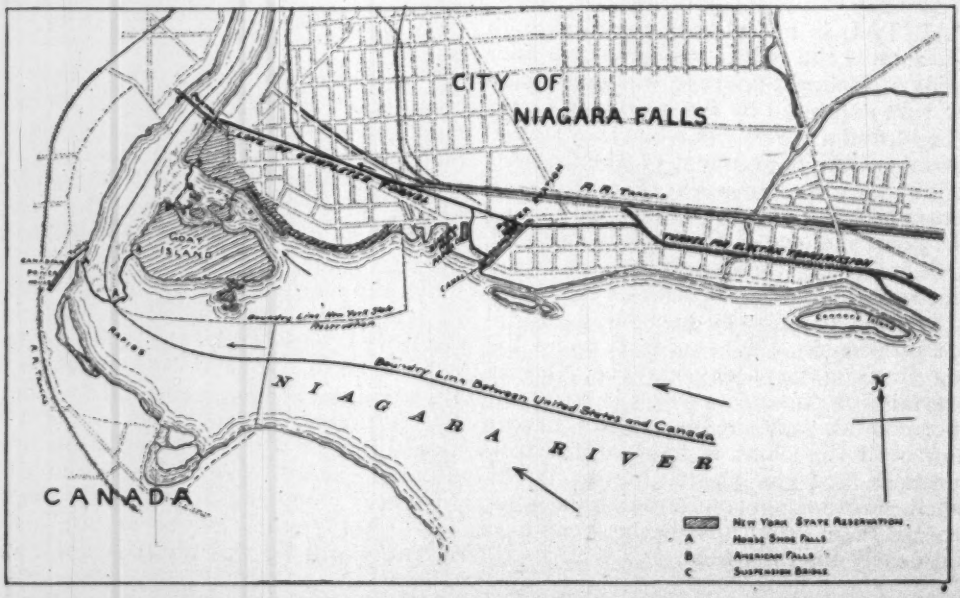
The power-producing plant now near completion at Niagara Falls is an experiment, however, only as regards the commercial availability of the electric current to be generated. The use of some portion of the power captured from the Niagara cataract as a direct force brought to bear upon turbine wheels, so that they may move the machinery of immense mills, and as many mills as can be erected within the territory controlled by the company, is not experimental. None of the experts doubted the ability of the engineers, mechanical and hydrographic, to construct a plant that would furnish a water-power equivalent to all of the power used in the city of Buffalo for every commercial purpose. The driving of the greatest paper-making machine in the world by this water-power has not

SEAL OF THE CATARACT CONSTRUCTION COMPANY. PHOTOGRAPHED FROM THE ORIGINAL, WHICH WAS MODELLED IN CLAY BY MCMONNIES.

only been proved possible by practice, but it was proved possible even before the first stone was blasted from those rocky banks to make place for the foundations of the mill. To-day this colossal machine, dragon-like in its length and suggestion, the longest single piece of machinery in operation in any of the factories in the world, runs as smoothly, and delivers its finished product as perfectly, as the most exacting of mechanics or manufacturers could demand. To effect this only a little over three thousand horse-power is diverted from the Niagara current, and the amount of water is as inappreciable, almost, in its effect upon the Rapids, as would be the withdrawal of a hogshead of water from the ocean.

It is the design to secure perhaps as much as fifty thousand horse-power from the force of the Niagara current, by diverting it into turbine wheels for direct application. This of itself would create one of the greatest water-power plants in the world, and, if cost, transportation facilities, and other conveniences of manufacture are found to be satisfactory to the manufacturers, would be sure to rear upon the banks of the Niagara, before many years, a city rivalling Lowell, or Lawrence, or any of the great manufacturing towns in New England which have sprung into flourishing existence because water-power was near.

But it was not the development of water-power as a direct agent chiefly that led capitalists to put their money into the development of a power-producing plant. Their plan contemplated the conversion of some portion of the force of the Niagara current into electric power, and the delivery of that power to communities at least fifty, probably a hundred, and possibly five hundred miles or more away. Of course the mechanical engineers have long been aware that the power which goes to waste over



the Niagara precipice is sufficient to turn the wheels of probably every manufactory in the United States, if it could be communicated to them. For years a little of the Niagara force has been utilized at the Falls; paper-mills and other manufactories have long been established there. But the expense of utilizing the power on any large scale by the diversion of it to water wheels has been too great to tempt capitalists to make much of an investment for such purpose. Not until after the invention of dynamos and the development of electricity into a commercially available force, even when carried to some distance, did the capture of the Niagara River, and its subjection to honest labor on a large scale, command the serious thought of capitalists.

THE GREAT WHEEL-PITS IN COURSE OF CONSTRUCTION.

THE ORGANIZATION OF THE COMPANY.

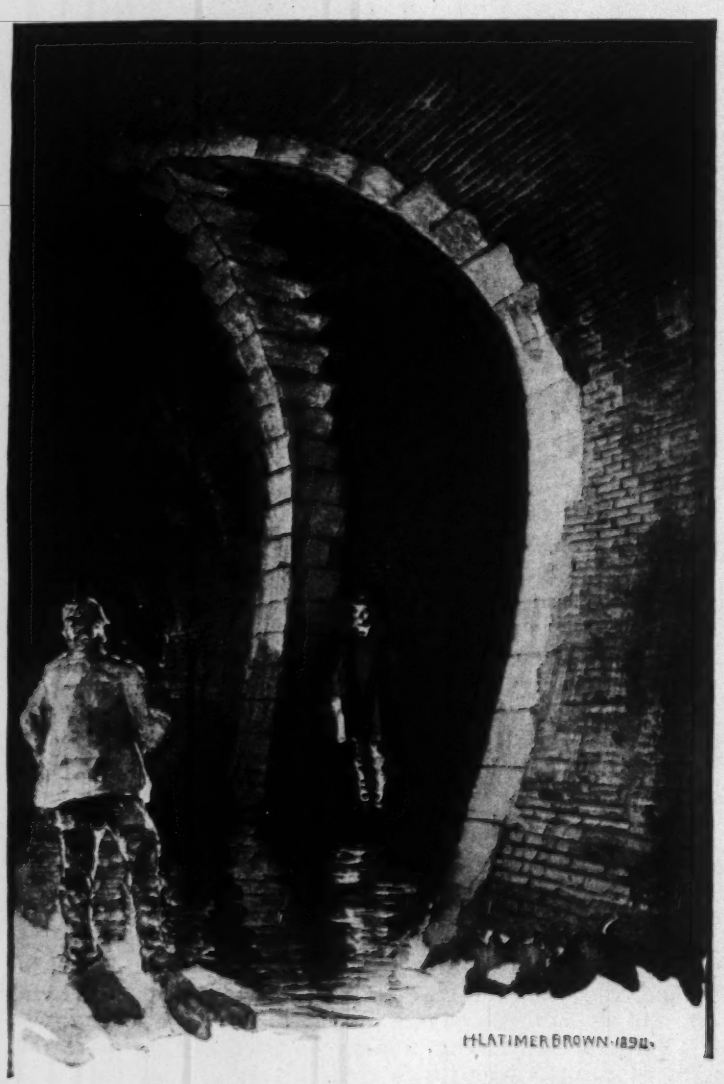
It is now nearly five years since a few of the citizens of Niagara Falls determined to attempt the organization of a company to develop the Niagara water power and supply from it electrical power to near-by manufactories, and perhaps to the city of Buffalo. They met with the usual discouragements. The patience and aggressive faith of Mr. W. P. Rankine, a young lawyer of Niagara Falls, were all that stood between the original project and failure. Repulsed here and laughed at there, Mr. Rankine at last turned to Mr. Francis Lynde Stetson, a lawyer of New York City, who, having a large practice and intimate relations with some of the greater capitalists, might, Mr. Rankine thought, be disposed

to try and interest them, if he were once interested himself.

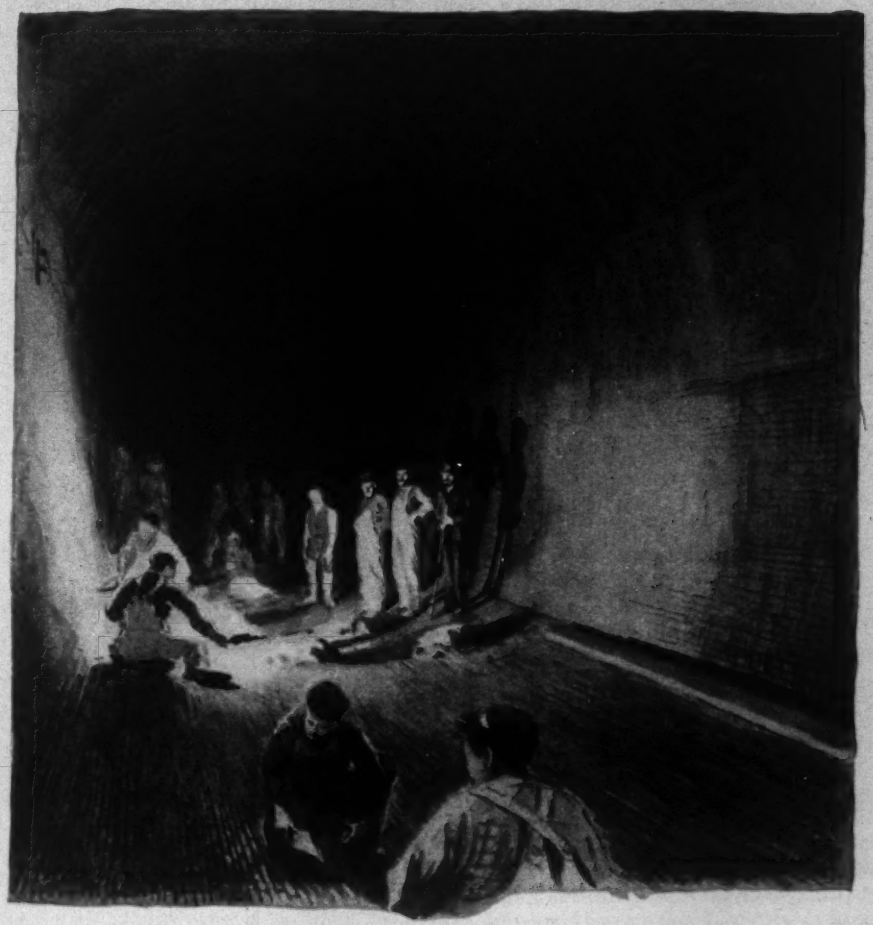
Mr. Stetson is a very busy lawyer. He is not a constructor, but a critic. It has not been his business to conceive and execute any of those plans which have developed into the greater business establishments of these years, but it has been his vocation to criticise, to view with the lawyer's eyes, to satisfy the statutes, and to show those who do plan what their rights and responsibilities are under the law. Therefore it was natural that, when the proposition to capture and control for the market some portion of Niagara's water power was made to him, he should be little disposed to listen. Perhaps, had the suggestion been made by one who was not an old and valued friend, he would have closed his ears to it entirely. As it was, it seemed to him too magnificent, almost too sublime, a scheme. However, he was at last persuaded, and upon his enlistment followed, under his influence, the enlistment of other important people. The company was organized, the needful money provided, the contracts given out, and upon a beautiful day in the spring of 1891, with appropriate and impressive ceremonies, the first spadeful of earth was turned.

A WORK OF THE LARGEST DIFFICULTIES.

The enterprise so fraught with difficulties in the mere getting organized, involved in its execution yet more trying problems. It was necessary to determine not only the mechanical possibilities contained in the plan of construction, but also whether the expense entailed would be reasonable or would be so great as to make it prohibitive. And back of all others lay the ever-perplexing question whether the electric current, having been produced, could also be made available for delivery at considerable distances from the plant. On this the opinions of some engineers were discouraging. The reports of others had something of hope in them; but it was the splendid confidence of so great an engineer as Dr. Coleman Sellers, supplemented by that of Lord Kelvin, Mr. Clemmens Herschel, and one or two others, upon which the faith of the capitalists was based. The problem was, perhaps, not wholly solved in theoretical demonstration until Nicola Tesla, that illuminating wizard of electricity, persuaded these capitalists that he had discovered and, in great measure, perfected mechanical appliances which would make it possible to deliver the electric current, under complete control, and



JUNCTION OF THE MAIN TUNNEL AND THE WHEEL-PITS.



INTERIOR OF THE MAIN TUNNEL.

without costly loss from waste, a long distance; certainly as far as Buffalo and Rochester, and, as he himself firmly believed, as far as Albany, three hundred miles away. Mr. Tesla also has faith that, with the improvements suggested by experience, it will be possible by and by to deliver the current at fairly competitive prices as far away as New York City on the east, and as Cleveland and other of the greater towns in Ohio on the west.

Whether Mr. Tesla's views are correct, is something that is yet to be tested. We cannot know, in fact, whether the electric current can be delivered with commercial profit to any considerable distance from the plant until (which will be a few weeks hence) the turbine wheels are actually started, their colossal power is delivered to the dynamos, and, after being by them converted into electricity, is conveyed thence to the testing points. The scientific world is awaiting these experimental tests as it awaited the first flashing of the message through the Atlantic cable; and the world of commerce and manufacture is awaiting them with no less interest. In Great Britain, lacking any colossal water power like Niagara, it is already proposed to set up sufficient plants at the coal mines for the local conversion of the coal into electricity, to be delivered all over England and Scotland; and this will surely be done if the Niagara enterprise succeeds.

THE FEEDING CANAL.

The power plant proper consists first of an inlet canal situated about a mile and a half up the river from the American Falls. This canal is really a great reservoir into which the water backs. The opening, or great, gates, are placed not at the upper but at the lower end, the end nearest the Falls. That was done because the engineers believed that the current would be too strong if the water was admitted directly from the river. It therefore goes in by

THE SUBWAY CONDUIT, WITH BRACKETS FOR CARRYING THE ELECTRIC WIRES. THE CONDUIT WAS ABANDONED ON ACCOUNT OF THE HEAVY COST OF CONSTRUCTION.

a back flow. The canal will always be full. No drought, no frost of winter, has ever occurred so severe as to interfere materially with the flow of water over Niagara's brink. Into the canal are cut gateways of massive masonry, each controlled by a heavy gate, and connected with enormous shafts, or penstocks, of iron and steel, some of them of a diameter as great as seven feet. Through each shaft may be delivered a continuous force of water equivalent to from two thousand to five thousand horse-power. Those that turn the turbine wheels which keep the massive machinery of the paper-mill in motion, deliver three thousand six hundred horse-power. The total capacity of the canal is one hundred thousand horse-power; and it will be possible to so increase the capacity of this and other plants controlled by the parent and allied companies that ultimately there may be captured from Niagara Falls as much as four hundred and fifty thousand horse-power.

Some sense of the full significance of these figures can be had by bearing in mind that the city of Buffalo, one of the great manufacturing centres of the country, employs at present a force equivalent to only fifty thousand horse-power for all of its manufacturing plants. Four hundred and fifty thousand horse-power would serve to turn the wheels of every manufactory in central New York, to light and heat the cities and towns, and to provide propulsive power for the boats employed in traffic on the Erie canal. Yet even this is but a small fraction of the power which now goes to waste over the Niagara precipice. It has been estimated that when the plant is run to its full capacity, it will absorb only so much water from the river as would cause it to recede less than seven inches from its present mark upon the banks.

THE GREAT WHEEL-PITS.

Next to the canal or reservoir to be observed, are the great and gloomy pits at the bottom of which the turbine wheels are placed. Standing in the power-house of the paper-mill and looking down into the pit, it seems almost as though we were gazing into the mouth of the infernal regions. The workmen light a piece of tow saturated with oil, and when it has flamed up into a huge torch, let it down by a rope to the bottom of the pit. Then the visitor may see by the ghastly light of this torch the rushing of the water as it escapes from the wheel, and, coming up from the depths, he hears an infernal diapason. The force of the water is so great that if a man received it upon his body he would be crushed and shattered as though blown from the mouth of a cannon. The power is so great that turbine wheels of almost perfect resisting tensile strength have had to be made in order to receive the force with safety. Some of them are so large that it is possible for a man to stand between the blades, and one photograph has been taken in which Mr. Stetson and some of the officers of the company are pictured thus framed by these bronze blades. The pits are cut out of the solid rock, and the work was very expensive

THE MAIN TUNNEL WHILE UNDER CONSTRUCTION.

NIAGARA FALLS.

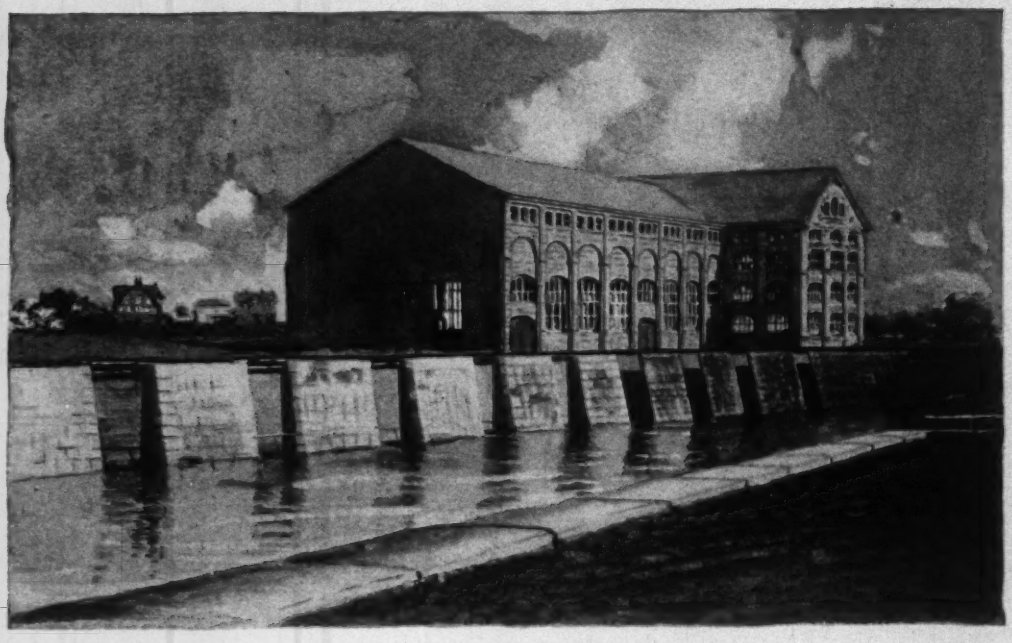
and difficult, consuming more time than the engineers had estimated it would.

THE ELECTRICAL POWER-HOUSE.

Over the greater of these pits is built the electrical power-house, a building designed by Stanford White, and suggesting in its unique and impressive architecture the enormous power to be generated within, and giving in itself some hint of the capacity of man to master the forces of nature. As it now stands it is one hundred and forty feet long, but the company designs ultimately to extend it three hundred feet. At the same time the main wheel-pit will be extended until it is large enough to contain ten turbine wheels, flying ten dynamos, each of five thousand horse-power. The water wheels at the bottom of the pit are connected by steel shafts to the dynamos, which are upon the main floor; so that the power of the water falling nearly two hundred feet upon the wheels is conveyed back to the surface and transformed by the dynamos into electricity. The dynamos are probably the finest and largest of all the mechanical implements now employed for the development of electrical power. They are built after the designs of the Westinghouse Company, and embody the very latest improvements in works of their class. For the present only enough of them are to be set up to produce electricity equivalent to fifteen thousand horse-power, and it is the design to deliver the greater part of this to the city of Buffalo.

THE GREAT TUNNEL.

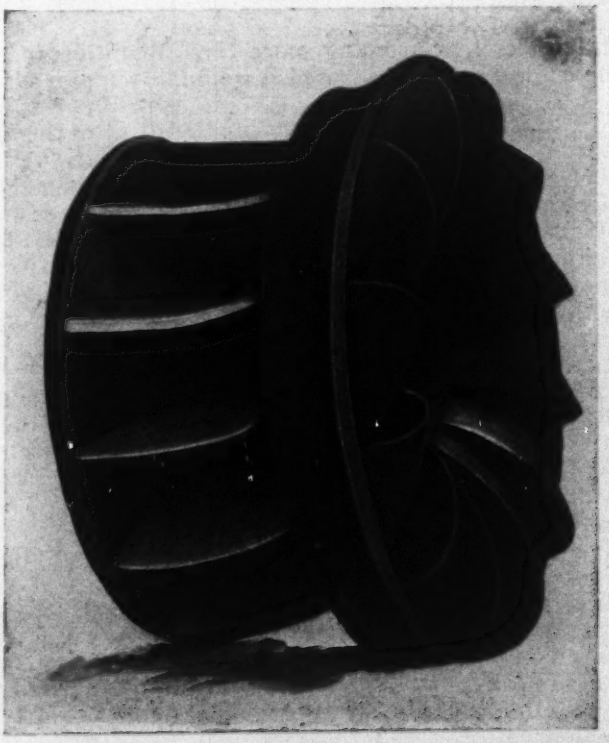
The most difficult to construct, perhaps, and the most impressive to view, of the several parts of this huge plant, is an artificial waterway, cut through the solid rock, two hundred feet beneath the surface. It is seven thousand feet in length, and as smooth and perfect as the boring of a great war gun. This is the main tunnel. It has no other function than to receive and discharge the water which has served its purpose and spent its force upon the turbine wheels. One section of it is almost directly beneath the heart of the town of Niagara Falls. When the passenger alights



THE POWER-HOUSE AND THE FEEDING-CANAL.

at the railway station he stands just over it. It is probably the most perfect piece of continuous rock boring to be found anywhere in the world. It is large enough to drive through, being eighteen feet and ten inches wide at its greatest diameter and fourteen feet and five inches wide at the bottom, and twenty-one feet high. It has a grade of from four to seven feet to the thousand, or sufficient to carry off the water swiftly, and yet with the least friction possible. The great boring is shaped like a horseshoe. In order that it may more surely resist the action of the water, it is lined at the lower end with plates of the best steel, and for the rest of the distance it is lined with bricks burned with the particular view of enabling them to resist the friction of the water. Some idea of the amount of work necessary to bore this tunnel may be obtained from the fact that the rock excavated in making it was sufficient to fill in nearly twenty acres of land along the shore of the Niagara, thus reclaiming, or, rather, actually constructing, land which is estimated to be worth at least one hundred thousand dollars.

One of the most difficult of the problems that the engineers had to solve was the connection of the main tunnel with the wheel pits, for just there not only was the force of the water very great, but it was necessary to turn the tunnel almost at right angles. The



A TURBINE WATER WHEEL.

tunnel proper runs as straight as the arrow flies, and the outlet, situated about a quarter of a mile below the American Falls and almost exactly underneath the new suspension bridge, is of itself a very remarkable piece of engineering work, one that has been greatly discussed by engineers and in the scientific journals. It is probable that this outlet, and the inlet connecting the tunnel with the wheel-pits, made a larger demand on engineering skill, and required more of accurate and careful science, than did the entire tunnel between these two.

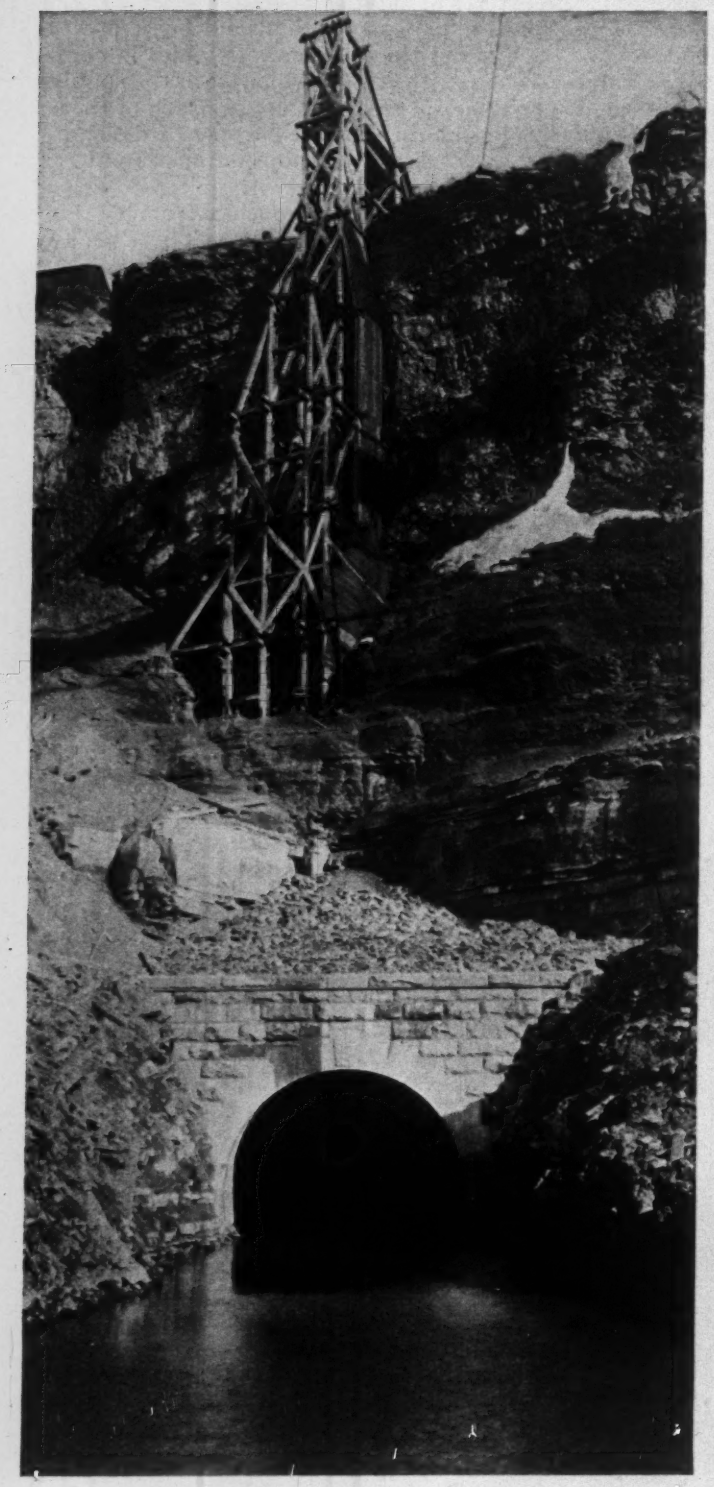
VIEW OF THE FALLS AND THE POWER-HOUSE.

THE WATER WHEELS.

The water wheels are not all of the same size. Those employed in the transmission of power to the machinery of the paper-mill were, when they were put in, the largest ever made. They were capable of generating as much as one thousand horse-power each. But they are mere pygmies in comparison with those which are to supply power to the great dynamos. Each of these has been built with the purpose of developing as much as five thousand horse-power, which is about the power required to drive an ordinary ocean steamship from twelve to fourteen knots an hour. There are to be three of these mammoth turbines, and their handmaids, the dynamos, are sympathetically colossal in their capacity to generate electricity.

THE COMMERCIAL PROBLEM.

Now that the plant itself is all finished and ready for the touching of the button which will send electricity over the wires, the next problem to be worked out in practice is the purely commercial one whether the

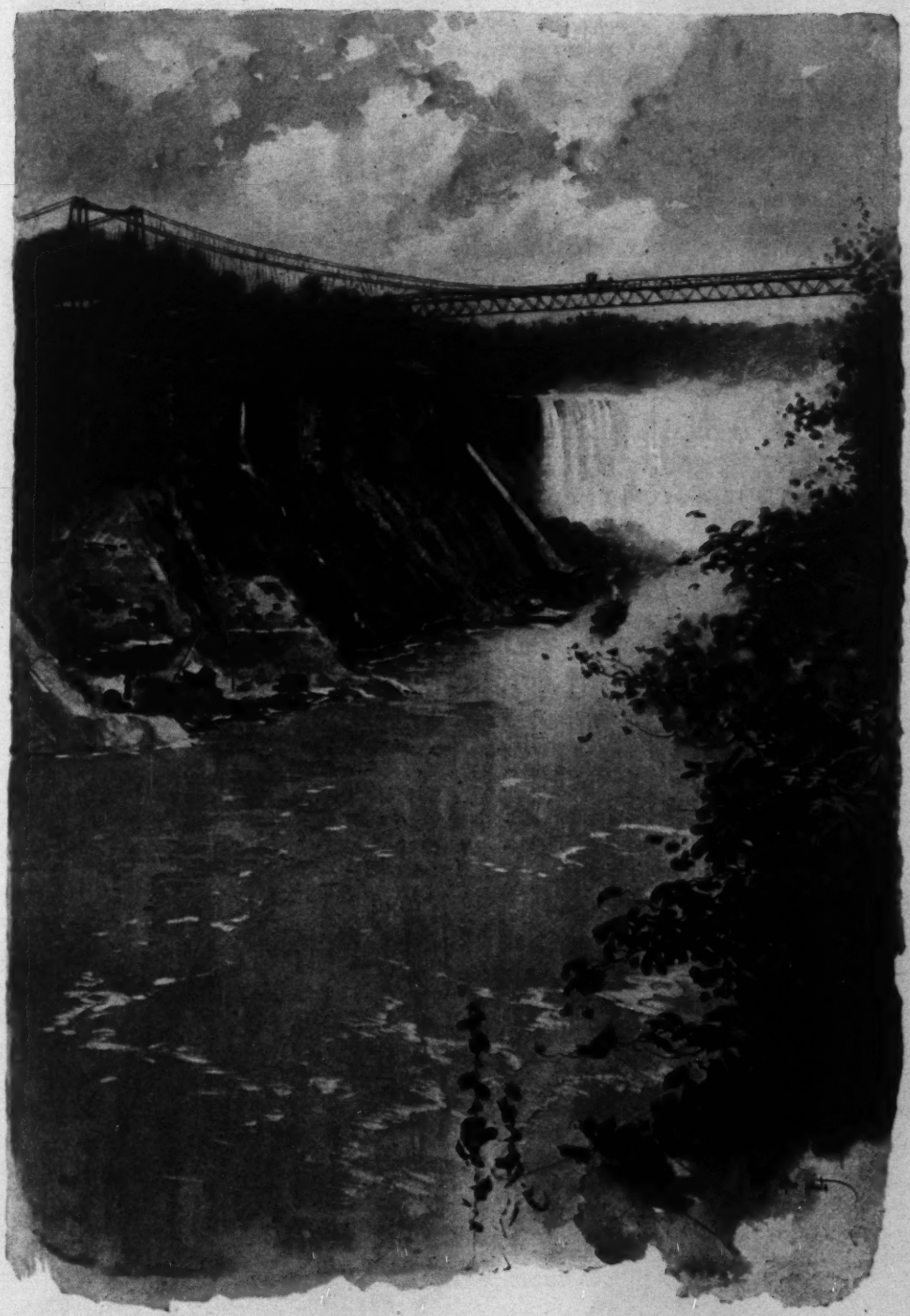


THE OUTLET OF THE TUNNEL BELOW THE FALLS.

power can be furnished to manufacturers, especially those at a considerable distance, at a price profitable to them and the company. The company itself, of course, and the able engineers and scientists who are associated with it, have no theoretical doubts about the commercial success of the undertaking. And, if it is commercially successful, it is simply the beginning of a prodigious revolution in the manner of producing and delivering power. In that case the time is probably not far distant when all of the considerable mills, all of the lighting, much of the traction power of the region within three hundred or four hundred miles of Niagara Falls will be furnished with this living energy which has been captured from the Niagara cataract. There will be created a considerable city at Niagara Falls, and there will be a great development of Buffalo as a manufacturing centre. Then considerable water powers in other sections of the country will be utilized so that the force of them can be converted into an electric current and delivered for commercial purposes to the towns within a considerable radius.

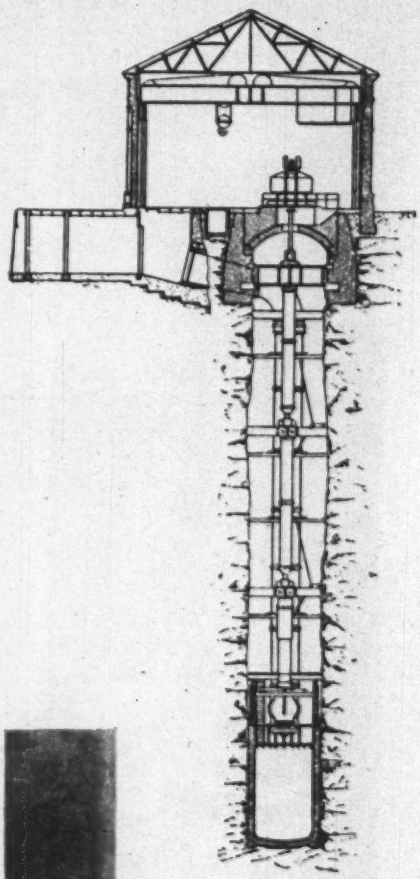
THE TRANSMISSION OF THE ELECTRICITY.

It was the first intention of the engineers to carry the electric current from the power-house by means of wires stretched through a subway conduit, whose beginnings may now be seen at a point near the power-house. But it has been discovered that the construction of such a conduit will be too costly, and the electricity is to be transmitted by overhead wires. This is the part of the undertaking which Mr. Tesla has devoted much thought to for several years. He has assured the company that, by means of inventions and the scientific application of newly-discovered principles which he has



THE SUSPENSION BRIDGE, SHOWING THE OUTLET OF THE TUNNEL AT THE LEFT.

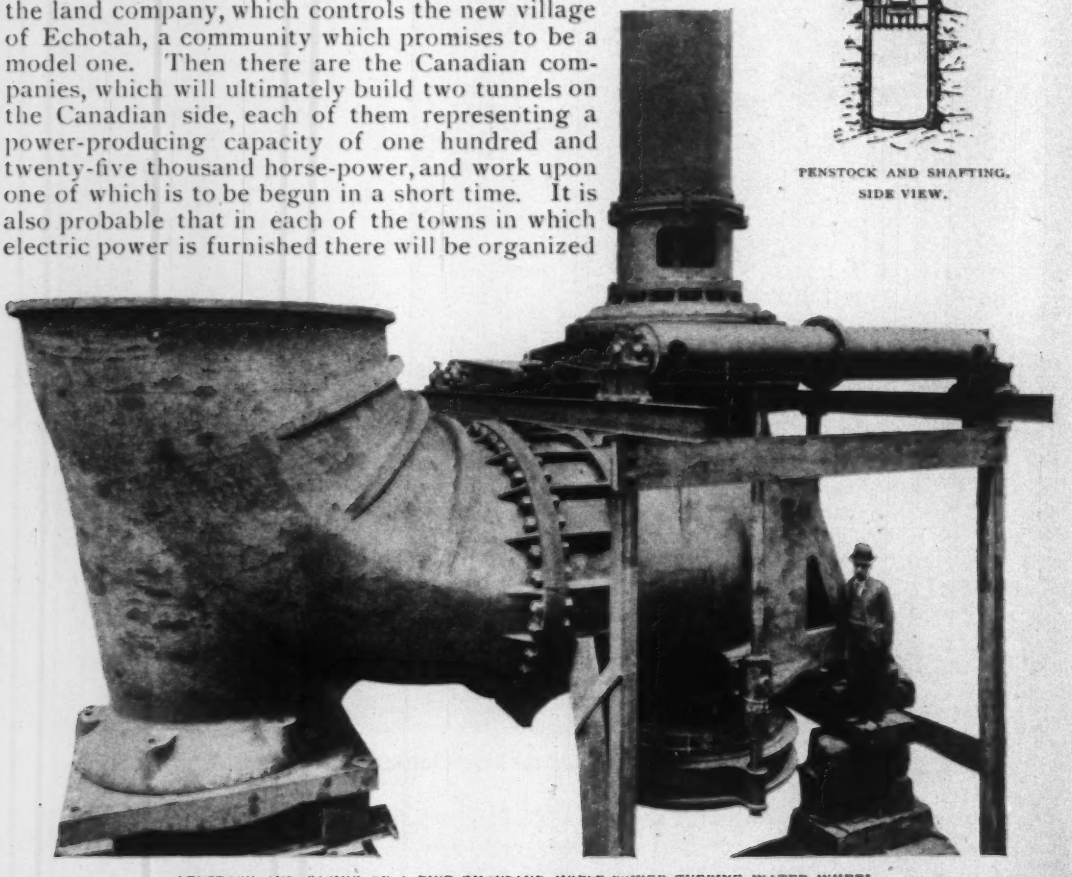
been able to make, it will be possible to convey the current without very great loss by induction or leakage, and under absolute control, by the use of certain transformers, as far east as Albany. It is Mr. Tesla's opinion that this current can be sufficiently utilized even to propel vessels from Albany to New York. The capitalists have faith in him. The scientists believe that he is right. The city of Buffalo is persuaded that it is so, and already contracts for the delivery of as much as ten thousand horse-power to that city have been made. In a general way it has been estimated that the power can be delivered to any town within a distance of three hundred miles, at a cost of about fourteen dollars a year per horse-power, and for twenty-four hours a day, while it is estimated that the cost to the city of Buffalo will be considerably less.



PENSTOCK AND SHAFTING, SIDE VIEW.

THE SEVERAL COMPANIES.

In the enterprise are several companies, each independent as a corporation, but all mutually dependent upon the parent company. There is the Niagara Construction Company, the Niagara Falls Power Company, the railway company (for they have built a railway some five miles in length), and the land company, which controls the new village of Echotah, a community which promises to be a model one. Then there are the Canadian companies, which will ultimately build two tunnels on the Canadian side, each of them representing a power-producing capacity of one hundred and twenty-five thousand horse-power, and work upon one of which is to be begun in a short time. It is also probable that in each of the towns in which electric power is furnished there will be organized

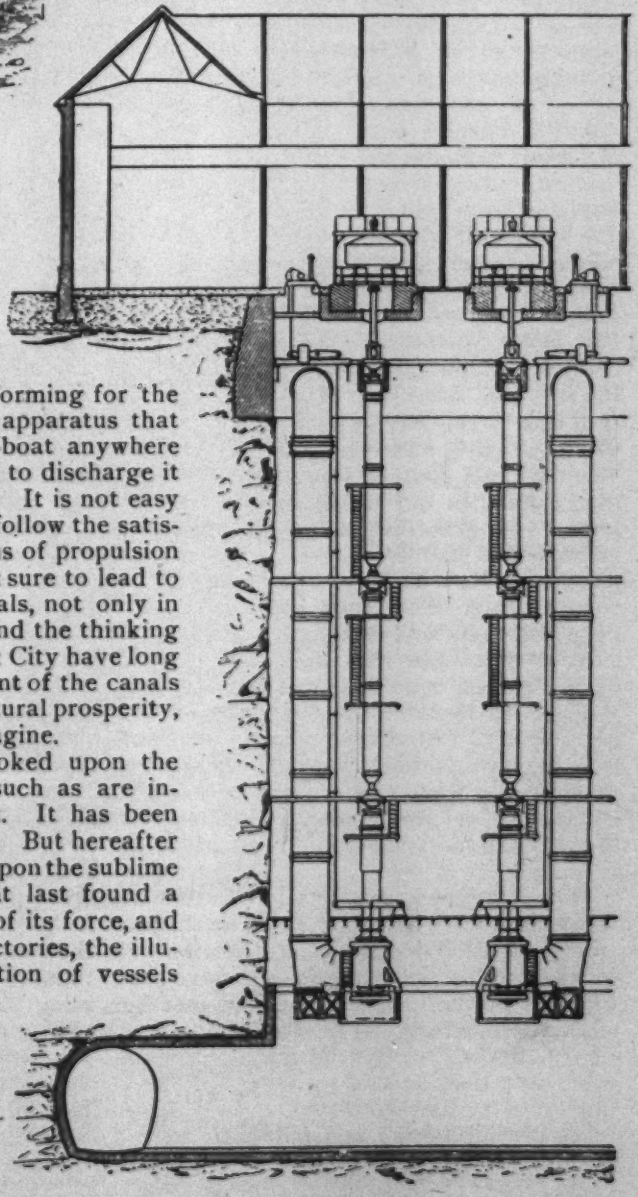


PENSTOCK AND CASING OF A FIVE THOUSAND HORSE-POWER TURBINE WATER WHEEL.

local companies for the control of it, independent in one respect, and yet practically controlled by the parent company.

One of the most important of the undertakings in contemplation is that of furnishing electricity for the propulsion of canal-boats. That the electric current can satisfactorily propel a heavily laden canal-boat was demonstrated by experiments made near Rochester last fall under the direction of Mr. Frank Hawley, who, while associated with the parent company indirectly, is more especially interested in the development of electric power for canal purposes. Already projects are forming for the equipment of the Erie canal with apparatus that will make it possible for a canal-boat anywhere to take up the electric current, and to discharge it again wherever the owner pleases. It is not easy to estimate the results that would follow the satisfactory use of electricity as a means of propulsion upon our water-ways. It is almost sure to lead to a greater development of the canals, not only in New York State, but elsewhere; and the thinking men of the exchanges in New York City have long said that with a greater development of the canals will come a commercial and agricultural prosperity, the limits of which no man can imagine.

A STREET IN THE NEW VILLAGE OF ECHOTAH.



PENSTOCK AND SHAFTING—REAR VIEW.

Thousands of people have looked upon the Niagara cataract with emotions such as are inspired by no other natural object. It has been pronounced "nature's finest epic." But hereafter when the visitor who goes to look upon the sublime cataract discerns how men have at last found a way to take from it some portion of its force, and how the whirl of the wheels of factories, the illumination of cities, the steady motion of vessels upon the artificial waterways are all but responsive throbbings to the thunder of the cataract, perhaps he will consider that a yet finer epic has been written by the energy of those who have been engaged in subduing the forces of nature that they may serve mankind.

NIAGARA.*

SINCE the first dawn, thro' vague and unknown ways,
Between the icy north and where I fall,
From lands beyond the pole, from where brooks call,
And sing responsive to the cold birds' lays,
I glide, I leap, I bound, thro' nights and days;
I rush, I rave, I roar, and I appal—
Ay! to the very heights of heaven's wall—
The hosts that reverential glances raise.

And puny men who walk the earth ne'er dream
Of the great force beneath my glassy face;
And, so, from my brown bed up to the sod,
I seem in all my majesty supreme
Defying time and earth, and fate and space,
To be the tumult of the tears of God!

A DEAL ON 'CHANGE.

A TALE OF REVENGE.

BY ROBERT BARR.

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IT was in the days when drawing-rooms were dark, and filled with bric-à-brac. The darkness enabled the half-blinded visitor, coming in out of the bright light, to knock over gracefully a two hundred dollar vase that had come from Japan to meet disaster in New York.

In a corner of the room was seated, in a deep and luxurious armchair, a most beautiful woman. She was the wife of the son of the richest man in America; she was young; her husband was devotedly fond of her; she was mistress of a palace; anything that money could buy was hers did she but express the wish; but she was weeping softly, and had just made up her mind that she was the most miserable creature in all the land.

If a stranger had entered the room he would first have been impressed by the fact that he was looking at the prettiest woman he had ever seen; then he would have been haunted by the idea that he had met her somewhere before. If he were a man moving in artistic circles he might, perhaps, remember that he had seen her face looking down at him from various canvases in picture exhibitions; and unless he were a stranger to the gossip of the country he could hardly help recollecting the dreadful fuss the papers made, as if it were any business of theirs, when young Ed Druce married the artist's model, celebrated for her loveliness.

Every one has read the story of that marriage; goodness knows the papers made the most of it, as is their custom. Young Ed, who knew much more of the world than did his father, expected stern opposition; and, knowing the unlimited power unlimited wealth gave to the old man, he did not risk an interview with his parent, but eloped with the girl. The first inkling old man Druce had of the affair, was from a vivid, sensational account of the runaway in an evening paper. He was pictured in the paper as an implacable father, who was at that moment searching for the elopers with a shotgun. Old Druce had been too often the central figure of a journalistic sensation to mind what the sheet said. He promptly telegraphed all over the country, and getting into communication with his son, asked him (electrically) as a favor to bring his young wife home, and not make a fool of himself. So the truant pair, much relieved, came back to New York.

Old Druce was a taciturn man, even

* This poem was written by John Ernest McCann and the late Francis S. Saltus, in 1888, and is reprinted by special permission.

with his only son. He wondered, at first, that the boy should have so misjudged him as to suppose he would raise objections, no matter whom the lad wished to marry. He was bewildered rather than enlightened when Ed told him he feared opposition because the girl was poor. What difference on earth did that make? Had he not money enough for all of them? If not, was there any trouble in adding to their store? Were there not railroads to be wrecked, stockholders to be fleeced, Wall Street lambs to be shorn? Surely a man married to please himself and not to make money. Ed assured the old man that cases had been known where a suspicion of mercenary motives had hovered around a matrimonial alliance, but Druce expressed the utmost contempt for such a state of things.

THE OLD MAN STOPPED . . . WHEN HE NOTICED THAT HIS DAUGHTER-IN-LAW WAS CRYING.

At first Ella had been rather afraid of her silent father-in-law, whose very name made hundreds tremble and thousands curse; but she soon discovered that the old man actually stood in awe of her, and that his apparent brusqueness was the mere awkwardness he felt when in her presence. He was anxious to please her, and worried himself wondering whether there was anything she wanted.

One day he fumblingly dropped a check for a million dollars in her lap, and, with some nervous confusion, asked her to run out, like a good girl, and buy herself something; if that wasn't enough she was to call on him for more. The girl sprang from her chair and threw her arms around his neck, much to the old man's embarrassment, who was not accustomed to such a situation. She kissed him in spite of himself, allowing the check to flutter to the floor, the most valuable bit of paper floating around loose in America that day.

When he reached his office he surprised his son. He shook his fist in the young fellow's face and said sternly:

"If you ever say a cross word to that little girl, I'll do what I've never done yet; I'll thrash you!"

The young man laughed.

"All right, father. I'll deserve a thrashing in that case."

The old man became almost genial whenever he thought of his pretty daughter-in-

law. "My little girl," he always called her. At first, Wall Street men said old Druce was getting into his dotage; but when a nip came in the market, and they found that, as usual, the old man was on the right side of the fence, they were compelled reluctantly to admit, with emptier pockets, that the dotage had not yet interfered with the financial corner of old Druce's mind.

As young Mrs. Druce sat disconsolately in her drawing-room, the curtains parted gently, and her father-in-law entered stealthily, as if he were a thief, which indeed he was, and the very greatest of them. Druce had small, shifty, piercing eyes that peered out from under his gray bushy eyebrows like two steel sparks. He never seemed to be looking directly at any one, and his eyes somehow gave you the idea that they were trying to glance back over his shoulder, as if he feared pursuit. Some said that old Druce was in constant terror of assassination, while others held that he knew the devil was on his track and would ultimately nab him.

"I pity the devil when that day comes," young Sneed said once when some one had made the usual remark about Druce. This echoed the general feeling prevalent in Wall Street regarding the encounter that was admitted by all to be inevitable.

The old man stopped in the middle of the room when he noticed that his daughter-in-law was crying.

"Dear, dear!" he said. "What is the matter? Has Edward been saying anything cross to you?"

"No, papa," answered the girl. "Nobody could be kinder to me than Ed is. There is nothing really the matter." Then, to put the truth of her statement beyond all question, she began to cry afresh.

The old man sat down beside her, taking one hand in his own. "Money?" he asked in an eager whisper that seemed to say he saw a solution of the difficulty if it were financial.

"Oh, dear, no! I have all the money, and more, that any one can wish."

The old man's countenance fell. If money would not remedy the state of things, then he was out of his depth.

"Won't you tell me the trouble? Perhaps I can suggest——"

"It's nothing you can help me in, papa. It is nothing much, any way. The Misses Sneed won't call on me; that's all."

The old man knit his brows and thoughtfully scratched his chin.

"Won't call?" he echoed helplessly.

"No. They think I'm not good enough to associate with them, I suppose."

The bushy eyebrows came down until they almost obscured the eyes, and a dangerous light seemed to scintillate out from under them.

"You must be mistaken. Good gracious, I am worth ten times what old Sneed is! Not good enough? Why, my name on a check is——"

"It isn't a question of checks, papa," wailed the girl; "it's a question of society. I was a painter's model before I married Ed, and, no matter how rich I am, society won't have anything to do with me."

The old man absent-mindedly rubbed his chin, which was a habit he had when perplexed. He was face to face with a problem entirely outside his province. Suddenly a happy thought struck him.

"Those Sneed women!" he said in tones of great contempt, "what do they amount to, anyhow? They're nothing but sour old maids. They never were half so pretty as you. Why should you care whether they call on you or not?"

"They represent society. If they came, others would."

"But society can't have anything against you. Nobody has ever said a word against your character, model or no model."

The girl shook her head, hopelessly.

"Character does not count in society."

In this statement she was, of course, absurdly wrong, but she felt bitter at all the world. Those who know society are well aware that character counts for everything within its sacred precincts. So the unjust remark should not be set down to the discredit of an inexperienced girl.

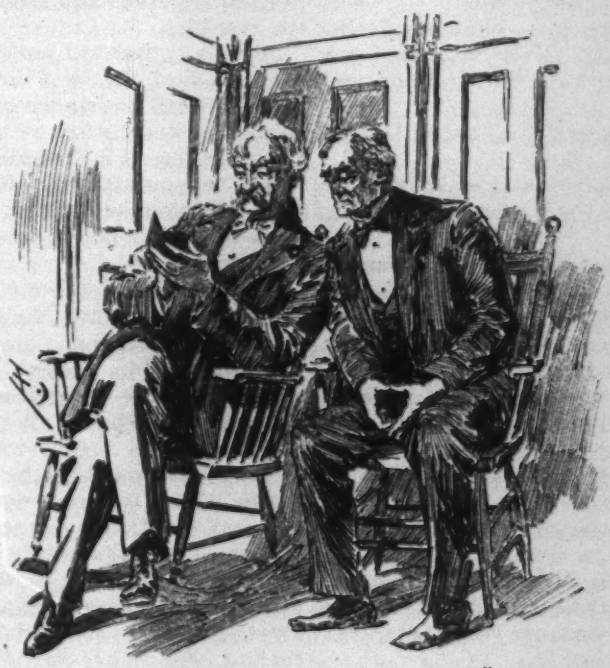
"I'll tell you what I'll do," cried the old man, brightening up. "I'll speak to General Sneed to-morrow. I'll arrange the whole business in five minutes."

"Do you think that would do any good?" asked young Mrs. Druce, dubiously.

"Good? You bet it'll do good! It will settle the whole thing. I've helped Sneed out of a pinch before now, and he'll fix up a little matter like that for me in no time. I'll just have a quiet talk with the General to-morrow, and you'll see the Sneed carriage at the door next day at the very latest." He patted her smooth white hand affectionately. "So don't you trouble, little girl, about trifles, and whenever you want help you just tell the old man. He knows a thing or two yet, whether it is on Wall Street or Fifth Avenue."

Sneed was known in New York as the General, probably because he had abso-

lutely no military experience whatever. Next to Druce he had the most power in the financial world of America, but there was a great distance between the first and the second. If it came to a deal in which the General and all the world stood against Druce, the average Wall Street man would have bet on Druce against the whole combination. Besides this, the General had the reputation of being a "square" man, and that naturally told against him, for every one knew that Druce was utterly unscrupulous. But if Druce and Sneed were known to be together in a deal, then the financial world of New York ran for shelter. Therefore, when New York saw old Druce come in with the stealthy tread of a two-legged leopard, and glance furtively around the great room, singling out Sneed with an almost imperceptible side nod, retiring with him into a remote corner where more ruin had been concocted than on any other spot on earth, and talking there eagerly with him, a hush fell on the vast assemblage of men, and for the moment the financial heart of the nation ceased to beat. When they saw Sneed take out his note-book, nodding assent to whatever proposition Druce was making, a cold shiver ran up the financial backbone of New York; the shiver communicated itself to the electric nerve web of the world, and storm signals began to fly in the monetary centres of London, Paris, Berlin, and Vienna.



"WHAT TIME SHALL I TELL THEM TO CALL?"

Uncertainty paralyzed the markets of the earth because two old men were holding a whispered conversation with a multitude of men watching them out of the corners of their eyes.

"I'd give half a million to know what those two old fiends are concocting," said John P. Buller, the great wheat operator, and he meant it; which goes to show that a man does not really know what he wants, and would be very dissatisfied if he got it.

"Look here, General," said Druce, "I want you to do me a favor."

"All right," replied the General, "I am with you."

"It's about my little girl," continued Druce, rubbing his chin, not knowing just how to explain matters in the cold financial atmosphere of the place in which they found themselves.

"Oh! About Ed's wife," said Sneed, looking puzzled.

"Yes. She's fretting her heart out because your two girls won't call upon her. I found her crying about it yesterday afternoon."

"Won't call?" cried the General, a bewildered look coming over his face. "Haven't they called yet? You see I don't bother much about that sort of thing."

"Neither do I. No, they haven't called. I don't suppose they mean anything by it, but my little girl thinks they do, so I said I would speak to you about it."

"Well, I'm glad you did. I'll see to that the moment I get home. What time shall I tell them to call?" The innocent old man, little comprehending what he was promising, pulled out his note-book and pencil, looking inquiringly at Druce.

"Oh, I don't know. Any time that is convenient for them. I suppose women know all about that. My little girl is at home most all afternoon, I guess."

The two men cordially shook hands, and the market instantly collapsed.

It took three days for the financial situation to recover its tone. Druce had not been visible, and that was all the more ominous. The older operators did not relax their caution, because the blow had

not yet fallen. They shook their heads and said the cyclone would be all the worse when it came.

Old Druce came among them the third day, and there was a set look about his lips which students of his countenance did not like. The situation was complicated by the evident fact that the General was trying to avoid him. At last, however, this was no longer possible; the two men met, and after a word or two they walked up and down together. Druce appeared to be saying little, and the firm set of his lips did not relax, while the General talked rapidly, and was seemingly making some appeal that was not responded to. Stocks instantly went up a few points.

"You see, Druce, it's like this," the General was saying. "The women have their world, and we have ours. They are, in a measure——"

"Are they going to call?" asked Druce, curtly.

"Just let me finish what I was about to say. Women have their rules of conduct, and we have——"

"Are they going to call?" repeated Druce in the same hard tone of voice.

The General removed his hat and drew his handkerchief across his brow and over the bald spot on his head. He wished himself in any place but where he was, inwardly cursing womankind and all their silly doings. Bracing up, after removing the moisture from his forehead, he took on an expostulatory tone.

"See here, Druce, hang it all, don't shove a man into a corner. Suppose I asked you to go to Mrs. Ed and tell her not to fret about trifles; do you suppose she wouldn't, just because you wanted her not to? Come, now!"

Druce's silence encouraged the General to take it for assent.

"Very well, then. You're a bigger man than I am, and if you could do nothing with one young woman anxious to please you, what do you expect me to do with two old maids as set in their ways as the Palisades? It's all dumb nonsense, anyhow."

Druce remained silent. After an irksome pause the hapless General floundered on:

"As I said at first, women have their world and we have ours. Now, Druce, you're a man of solid common sense. What would you think if Mrs. Ed were to come here and insist on your buying Wabash stock when you wanted to load up with Lake Shore? Look how absurd that would be. Very well, then; we have no more right to interfere with the women than they have to interfere with us."

"If my little girl wanted the whole Wabash system I'd buy it for her to-morrow," said Druce, with rising anger.

"My! What a slump that would make in the market!" cried the General, his feeling of discomfort being momentarily overcome by the magnificence of Druce's suggestion. "However, all this doesn't need to make any difference in our friendship. If I can be of any assistance financially I shall only be too——"

"Oh, I need your financial assistance!" sneered Druce. He took his defeat badly. However, in a moment or two he pulled himself together and seemed to shake off the trouble.

"What nonsense I am talking!" he said when he had obtained control of himself. "We all need assistance now and then, and none of us know when we may need it badly. In fact, there is a little deal I intended to speak to you about to-day, but this confounded business drove it out of my mind. How much gilt-edged security have you in your safe?"

"About three millions' worth," replied the General, brightening up now that they were off the thin ice.

"That will be enough for me if we can make a dicker. Suppose we adjourn to your office. This is too public a place for a talk."

They went out together.

"So there is no ill feeling?" said the General, as Druce arose to go with the securities in his handbag.

"No. But we'll stick strictly to business after this, and leave social questions alone. By the way, to show that there is no ill feeling, will you come with me for a blow on the sea? Suppose we say Friday. I have just telegraphed for my yacht, and she will leave Newport to-night. I'll have some good champagne on board."

"I thought sailors imagined Friday was an unlucky day?"

"My sailors don't. Will eight o'clock be too early for you? Twenty-third Street wharf."

The General hesitated. Druce was wonderfully friendly all of a sudden, and he knew enough of him to be just a trifle suspicious. But when he recollected that Druce himself was going, he said: "Where could a telegram reach us if it were necessary to telegraph? The market is a trifle shaky, and I don't like being out of town all day."

"The fact that we are both on the yacht

will steady the market. But we can drop in at Long Branch and receive despatches, if you think it necessary."

"All right," said the General, much relieved. "I'll meet you at Twenty-third Street at eight o'clock Friday morning, then."

Druce's yacht, the "Seahound," was a magnificent steamer, almost as large as an Atlantic liner. It was currently believed in New York that Druce kept her for the sole purpose of being able to escape in her should an exasperated country ever rise in its might and demand his blood. It was rumored that the "Seahound" was ballasted with bars of solid gold and provisioned for a two years' cruise. Mr. Buller, however, claimed that the tendency of nature was to revert to original conditions, and that some fine morning Druce would hoist the black flag, sail away, and become a real pirate.

The great speculator, in a very nautical suit, was waiting for the General when he drove up, and the moment he came aboard lines were cast off, and the "Seahound" steamed slowly down the bay. The morning was rather thick, so they were obliged to move cautiously, and before they reached the bar the fog came down so densely that they had to stop, while bell rang and whistle blew. They were held there until it was nearly eleven o'clock; but time passed quickly, for there were all the morning papers to read, neither of the men having had an opportunity to look at them before leaving the city.

As the fog cleared away and the engines began to move, the captain sent down and asked Mr. Druce if he would come on deck for a moment. The captain was a shrewd man, and understood his employer.

"There's a tug making for us, signalling us to stop. Shall we stop?"

Old Druce rubbed his chin thoughtfully, and looked over the stern of the yacht. He saw a tug, with a banner of black smoke, tearing after them, heaping up a ridge of white foam ahead of her. Some flags fluttered from the single mast in front, and she shattered the air with short, hoarse shrieks of the whistle.

"Can she overtake us?"

The captain smiled. "Nothing in the harbor can overtake us, sir."

"Very well. Full steam ahead. Don't answer the signals. You did not happen to see them, you know."

"Quite so, sir," replied the captain, going forward.

Although the motion of the "Seahound's" engines could hardly be felt, the tug, in spite of all her efforts, did not seem to be gaining. When the yacht put on her speed the little steamer gradually fell farther and farther behind, and at last gave up the hopeless chase. When well out at sea something went wrong with the engines, and there was a second delay of some hours. A stop at Long Branch was therefore out of the question.

"I told you Friday was an unlucky day," said the General.

It was eight o'clock that evening before the "Seahound" stood off from the Twenty third Street wharf.

"I'll have to put you ashore in a small boat," said Druce. "You won't mind that, I hope. The captain is so uncertain about the engines that he doesn't want to go nearer shore."

"Oh, I don't mind in the least. Good night. I've had a lovely day."

"I'm glad you enjoyed it. We will take another trip together some time, when I hope so many things won't happen as happened to-day."

The General saw that his carriage was waiting for him, but the waning light did not permit him to recognize his son until he was up on dry land once more. The look on the son's face appalled the old man.

"My God! John, what has happened?"

"Everything's happened. Where are the securities that were in the safe?"

"Oh, they're all right," said his father, a feeling of relief coming over him. Then the thought flashed through his mind: how did John know they were not in the safe? Sneed kept a tight rein on his affairs, and no one but himself knew the combination that would open the safe.

"How did you know the securities were not there?"

"Because I had the safe blown open at one o'clock to-day."

"Blown open! For heaven's sake, why?"

"Step into the carriage, and I'll tell you on the way home. The bottom dropped out of everything. All the Sneed stocks went down with a run. We sent a tug after you, but that old devil had you tight. If I could have got at the bonds, I think I could have stopped the run. The situation might have been saved up to one o'clock, but after that, when the street saw we were doing nothing, all creation couldn't have stopped it. Where are the bonds?"

"I sold them to Druce."

"What did you get? Cash?"

"I took his check on the Trust National Bank."

"Did you cash it? Did you cash it?" cried the young man. "And if you did, where is the money?"

"Druce asked me as a favor not to present the check until to-morrow."

The young man made a gesture of despair.

"The Trust National went to smash to-day at two. We are paupers, father; we haven't a cent left out of the wreck. That check business is so evidently a fraud that—but what's the use of talking? Old Druce has the money, and he can buy all the law he wants in New York. Oh! I'd like to have a seven seconds' interview with him with a loaded seven-shooter in my hand! We'd see how much the law would do for him then."

General Sneed despondently shook his head.

"It's no use, John," he said. "We're in the same business ourselves, only this time we got the hot end of the poker. But he played it low down on me, pretending to be friendly and all that." The two men did not speak again until the carriage drew up at the brown-stone mansion which earlier in the day Sneed would have called his own. Sixteen reporters were waiting for them, but the old man succeeded in escaping to his room, leaving John to battle with the newspaper men.

Next morning the papers were full of the news of the panic. They said that old Druce had gone in his yacht for a trip up the New England coast. They deduced from this fact that, after all, Druce might not have had a hand in the disaster; everything was always blamed on Druce. Still, it was admitted that whoever suffered, the Druce stocks were all right. They were quite unanimously frank in saying that the Sneeds were wiped out, whatever that might mean. The General had refused himself to all the reporters, while young Sneed seemed to be able to do nothing but swear.

Shortly before noon General Sneed, who had not left the house, received a letter brought by a messenger.

He feverishly tore it open, for he recognized the well-known scrawl of the great speculator.

DEAR SNEED [it ran]: You will see by the papers that I am off on a cruise, but they are as wrong as they usually are when they speak of me. I learn there was a bit of a flutter in the market while we were away yesterday, and I am glad to say that my brokers, who are sharp men, did me a good turn or two. I often wonder why these flurries come, but I suppose it is to let a man pick up some sound stocks at a reasonable rate, if he has the money by him. Perhaps they are also sent to teach humility to those who might else become purse-proud. We are but finite creatures, Sneed, here to-day and gone to-morrow. How foolish a thing is pride! And that reminds me that if your two daughters should happen to think as I do on the uncertainty of riches, I wish you would ask them to call. I have done up those securities in a sealed package and given the parcel to my daughter-in-law. She has no idea what the value of it is, but thinks it a little present from me to your girls. If, then, they should happen to call, she will hand it to them; if not, I shall use the contents to found a college for the purpose of teaching manners to young women whose grandfather used to feed pigs for a living, as indeed my own grandfather did. Should the ladies happen to like each other, I think I can put you on to a deal next week that will make up for Friday. I like you, Sneed, but you have no head for business. Seek my advice oftener. Ever yours,

DRUCE.

THE SNEED GIRLS CALLED.

The Sneed girls called on Mrs. Edward Druce.

RECENT ADVANCES IN OUR KNOWLEDGE OF THE MOON'S SURFACE.

By Edward S. Holden, LL.D., Director of the Lick Observatory.

THE great telescope of the Lick Observatory is not only a powerful instrument for *seeing* the heavenly bodies, but it is also a powerful camera for photographing them. The object-glass is three feet in aperture, and it was, until very recently, the largest in existence. A supplementary lens, thirty-three inches in diameter, is provided, which can be attached to the telescope just in front of the thirty-six-inch lens. When it is so attached the combination becomes a great photographic camera — the largest in the world—which is especially suited to do certain classes of work. One of the things which it is particularly well fitted to do is to photograph the moon; and for the past few years considerable time has been devoted to making negatives of the moon during the course of a lunation — from new to full moon. As the shadows on the moon change materially during a few hours, it has been necessary to make a set of such pictures every hour or so, and the whole series gives a very perfect representation of the lunar topography as it is now. By comparing these photographs with others previously made (by Rutherfurd, Draper, De la Rue), and more especially with photographs which will be made in the future, it will be easy to detect any important changes which occur in the lunar surface. It is certain that such changes must occur, since gravity is constantly working on the moon, as on the earth, to

THE MOON. PHOTOGRAPHED AT THE LICK OBSERVATORY, OCTOBER 11, 1891.

THE CRATER COPERNICUS. DRAWN BY PROFESSOR WEINEK FROM A NEGATIVE MADE AT LICK OBSERVATORY. MOON'S DIAMETER, ABOUT TEN FEET.

pull down existing structures; and it is to the study of changes that we have to look for a more intimate knowledge of lunar conditions. An accurate plastic representation of the moon's surface is a pre-requisite for such a study, and it will be seen that the photographs of the Lick Observatory, when properly examined, afford every desired datum. Most of the photographs made by previous astronomers were on too small a scale, and were not precise enough in definition to afford the necessary accuracy. The enlargements from our negatives meet every want, and enable us to construct a satisfactory map of the moon on a scale of ten feet to the moon's diameter. One inch on such a map corresponds to about seventeen miles, or one-seventeenth of an inch to one mile. A map of California on this scale would be about forty-one inches long.

The original negatives made in the focus of the large telescope are a little over five inches in diameter. They are extremely beautiful as mere pictures, especially when copied as transparencies on glass. Everything that the telescope will show is contained in these originals, but the scale is still so small that minor features cannot be distinguished. A mile on the moon is only a few thousandths of an inch on the negative, for example. Hence they must be enlarged to be of use. Without enlargement they are of small scientific value.

The accompanying cut represents one of our negatives in its natural size. The top of the cut is south, the right hand side is west. The half-tone process employed is hardly delicate enough to do justice to the original picture from which the copy was made.

In order to fully utilize our negatives the enlargement must be considerable. It must be from seven to twenty times, for example. Our preliminary experiments of 1888 had shown that admirable negatives could be taken in the focus of the great telescope, and in 1890 the work of making a long series of these was begun. At the same time the question of enlargement was considered. There are three ways of making such enlargements. The first is to examine the negative under a microscope and to draw what is seen; the second is to place an amplifying lens in the telescope itself and to directly take an enlarged negative; and the third is to enlarge the focal negative, once more, in an ordinary camera. It was found that the second method was not practical with a telescope like our own, though it has succeeded very well with smaller and lighter ones, which are easier to move so that they will follow the moon during the exposure. The first and third methods have, however, been most successfully employed. Our original negatives or glass copies of them were sent to my friend Professor Weinek, Director of the Imperial Observatory of Prague, who beside being an astronomer is an artist of high talent, and who had

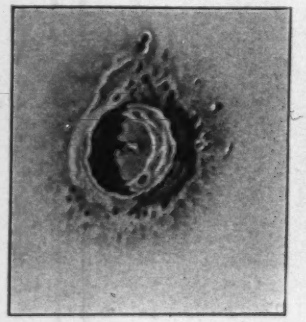
made very many drawings of the moon with the six-inch telescope belonging to his own observatory. Professor Weinek undertook to work in concert with the Lick Observatory and to continue his lunar studies, using now, however, our negatives as the object to be copied instead of the moon itself. The negative was firmly fixed in a frame, suitably illuminated by artificial light, and examined inch by inch through a strong magnifier. The drawing was made on squared paper accurately to scale. The picture of Copernicus which is reproduced here represents one of Professor Weinek's latest and best drawings of this kind.

This crater is on a scale of about nine feet to the moon's diameter. The picture is an absolutely precise copy of one of the Lick

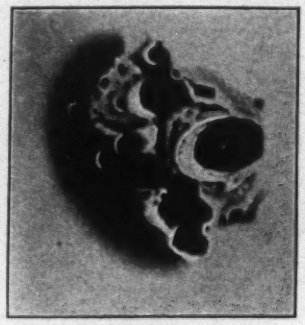
COPY OF AN ENLARGED NEGATIVE OF THE LUNAR APENNINES MADE AT LICK OBSERVATORY.

Observatory negatives, and it has cost two hundred and twenty-five hours of actual drawing to bring it to its present state. The artist must copy painfully *everything* which is shown in the negative—whether the details be real objects on the moon, or merely annoying defects in the film. It is impossible for him to tell whether a small object, a few thousandths of an inch in diameter, which is seen in the negative, is a minute crater on the moon's surface or merely a small defect in the film. It is impossible for him to make this discrimination *at once*. But after his drawing is finished; after he has made an absolutely perfect copy of one negative; this copy can be, and always is, compared with a second negative taken at a different hour, it may be, taken on a different night. Everything that is unmistakably shown on the two entirely independent negatives is a real feature of the moon's surface. If any doubt remains, recourse is always had to a new comparison with a third negative, and this process leads in the end to absolute certainty. Such and such features are really features on the moon; such and such others are, as yet, doubtful; and others, yet again, are undoubtedly small flaws in the plate which no human eye can distinguish, by their appearance, from real lunar craters. Every drawing made in this manner is accompanied by a precise list of the identifications, so made, and the final conclusions are exact. This very brief account of the process followed by Professor Weinek gives but a faint idea of the immense amount of labor which must be expended upon the negatives before results of value are attained. The drawings which are here reproduced show that these results are worth all the labor they have cost. Very many new features, new craters, new rills, new systems of cracks in crater-floors, etc., have been discovered in this way. This is no place to give a list of them. But it may be said that our future knowledge of the moon will depend upon just such discoveries. What was known of the lunar topography before our work was begun was quite insufficient as a basis for a minute study of lunar conditions. It will be seen that the focal negatives contained all the data of the enlargements. But to obtain scientific results it was not sufficient to hold the negatives in the hand and to examine them with an ordinary magnifier. They had to be studied under the microscope, and no less than two hundred and twenty-five hours of actual work had to be expended on a single drawing.

The *results* of this method of work are entirely satisfying, but it will be seen that they were reached at the expenditure of enormous labor. If they could not be reached in any other way, they were worth all the labor they cost. The simplest way to obtain enlargements of the original pictures to the desired scale is, of course, to magnify them in a photographic camera, and some of our negatives were entrusted to skilled photographers to be enlarged, as early as 1890. No great success was reached until 1892, when I superintended the preparation of an exhibit of astronomical pictures to be sent to the World's Fair in Chicago. It was then found to be easy to enlarge any and all of our negatives to a scale of three feet to the moon's diameter, and some of them were enlarged considerably more than this, with success. The picture of the lunar Apennines represents, very well, our progress up to 1892.



Copernicus.



Tycho.

DRAWINGS MADE WITH A SIX-INCH EQUATORIAL.

About this time some of our negatives fell into the hands of Baron Albert Rothschild of Vienna, a distinguished amateur photographer, and it was not long before he produced admirable carbon enlargements on a scale of more than six feet to the diameter. The question was then taken up by Professor Weinek himself, and he has been for some time making enlargements of small areas on the moon to a scale of ten feet to the diameter. The print of the crater Tycho is one of these, selected out of a large number now on hand. It is entirely satisfactory in every respect, and it gives results superior to the best drawings in one-tenth part of the time. *Two* such enlargements must, of course, be made and compared before it is certain that

THE CRATER TYCHO. ENLARGED BY PROFESSOR WEINEK FROM A NEGATIVE MADE AT THE LICK OBSERVATORY. MOON'S DIAMETER TEN FEET.

the smaller details are veritable lunar objects and not mere flaws in the film; but such comparisons are readily made, and they have already led to interesting results.

The present state of the question of making lunar maps will be clear from what has gone before. It may be somewhat difficult for those who are not professional astronomers to appreciate just how much progress has been made by the use of the Lick Observatory negatives. I can illustrate this advance in a striking way by reproducing here certain drawings of the craters Copernicus and Tycho which were made by Professor Weinek himself by direct observation of the moon through the six-inch telescope at Prague. Here we have the same observer engaged in the same work in both cases, using the same skill and faithfulness. The results are extremely different. The small drawings represent the very best pictures of the moon which were available when the Lick Observatory began its work of photography. We possessed also some very excellent maps, but our photographs have shown how unsatisfactory even the best of these maps were and are.

YOUNG ROBIN GREY.

By Bret Harte.

THE good American bark "Skyscraper" was swinging at her moorings in the Clyde, off Bannock, ready for sea. But that good American bark, although owned in Baltimore, had not a plank of American timber in her hulk, nor a native American in her crew; and even her nautical "goodness" had been called into serious question by divers of that crew during her voyage, and answered more or less inconclusively with belaying pins, marlinspikes, and ropes' ends at the hands of an Irish-American captain and a Dutch and Danish mate. So much so that the mysterious powers of the American Consul at St. Kentigern had been evoked to punish mutiny on the one hand, and battery and starvation on the other; both equally attested by manifestly false witness and subornation on each side. In the exercise of his functions the Consul had opened and shut some jail doors, and otherwise effected the usual sullen and deceitful compromise, and his flag was now flying, on a final visit, from the stern sheets of a smart boat alongside. It was with a feeling of relief at the end of the interview that he at last lifted his head above an atmosphere of perjury and bilge water, and came on deck. The sun and wind were ruffling and glinting the broadening river beyond the "measured mile;" a few gulls were wavering and dipping near the lee scuppers, and the sound of Sabbath bells, mellowed by a distance that secured immunity of conscience, came peacefully to his ear.

"Now that job's over, ye'll be takin' a partin' dhrink," suggested the Captain.

The Consul thought not! Certain incidents of "the job" were fresh in his memory, and he proposed to limit himself to his strict duty.

"You have some passengers, I see," he said, pointing to a group of two men and a young girl, who had apparently just come aboard.

"Only wan, an engineer going out to Rio. Them's just his friends seein' him off, I'm thinkin'," returned the Captain, surveying them somewhat contemptuously.

The Consul was a little disturbed. He wondered if the passenger knew anything of the quality and reputation of the ship to which he was intrusting his fortunes. But he was only a passenger, and the Consul's functions—like those of the aloft-sitting cherub of nautical song—were restricted exclusively to looking after "poor Jack." However, he asked a few further questions, eliciting the fact that the stranger had already visited the ship with letters from the eminently respectable consignees at St. Kentigern, and contented himself with lingering near them. The young girl was accompanied by her father, a respectably rigid-looking middle-class tradesman, who, however, seemed to be more interested in the novelty of his surroundings than in the movements of his daughter and their departing friend. So it chanced that the Consul reëntered the cabin—ostensibly in search of a missing glove, but really with the intention of seeing how the passenger was bestowed—just behind them. But to his great embarrassment he at once perceived that, owing to the obscurity of the apartment, they had not noticed him; and, before he could withdraw, the man had passed his arm around the young girl's half-stiffened yet half-yielding figure.

"Only one, Ailsa," he pleaded in a slow, serious voice, pathetic from the very absence of any youthful passion in it; "just one, now. It'll be gey lang before we meet again. Ye'll not refuse me now."

The young girl's lips seemed to murmur some protest, that, however, was lost in the beginning of a long and silent kiss.

The Consul slipped out softly. His smile had died away. That unlooked-for touch of human weakness seemed to purify the stuffy and evil-reeking cabin, and the recollection of its brutal past to drop with a deck-load of iniquity behind him to the bottom of the Clyde. It is to be feared that in his unofficial moments he was inclined to be sentimental; and it seemed to him that the good ship "Skyscraper" henceforward carried an innocent freight not mentioned in her manifest, and that a gentle, ever-smiling figure, not entered on her books, had invisibly taken a place at her wheel.

But he was recalled to himself by a slight altercation on deck. The young girl and the passenger had just returned from the cabin. The Consul, after a discreetly care-

less pause, had lifted his eyes to the young girl's face, and saw that it was singularly pretty in color and outline, but perfectly self-composed and serenely unconscious. And he was a little troubled to observe that the passenger was a middle-aged man, whose hard features were already considerably worn with trial and experience.

Both he and the girl were listening with sympathizing but cautious interest to her father's contention with the boatman who had brought them from shore, and who was now inclined to demand an extra fee for returning with them. The boatman alleged that he had been detained beyond "kirk time," and that this imperilling of his salvation could only be compensated by another shilling. To the Consul's surprise this extraordinary argument was recognized by the father, who, however, contented himself by simply contending that it had not been stipulated in the bargain. The issue was, therefore, limited, and the discussion progressed slowly and deliberately, with a certain calm dignity and argumentative satisfaction on both sides that ennobled the subject, though it irritated the Captain.

"If ye accept the premises that I've just laid down, that it's a contract," began the boatman.

"Dry up! and haul off," said the Captain.

"One moment," interposed the Consul, with a rapid glance at the slight trouble in the young girl's face. Turning to the father, he went on: "Will you allow me to offer you and your daughter a seat in my boat?"

It was an unlooked-for and tempting proposal. The boatman was lazily lying on his oars, secure in self-righteousness and the conscious possession of the only available boat to shore; on the other hand, the smart gig of the Consul, with its four oars, was not only a providential escape from a difficulty, but even to some extent a quasi-official indorsement of his contention. Yet he hesitated.

"It'll be costin' ye no more?" he said interrogatively, glancing at the Consul's boat crew, "or ye'll be askin' me a fair proportion."

"It will be the gentleman's own boat," said the girl, with a certain shy assurance, "and he'll be paying his boatmen by the day."

The Consul hastened to explain that their passage would involve no additional expense to anybody, and added, tactfully, that he was glad to enable them to oppose extortion.

"Ay, but it's a preencipel," said the father, proudly; "and I'm pleased, sir, to see ye recognize it."

He proceeded to help his daughter into the boat without any further leave-taking of the passenger, to the Consul's great surprise, and with only a parting nod from the young girl. It was as if this momentous incident were a sufficient reason for the absence of any further trivial sentiment.

Unfortunately the father chose to add an exordium for the benefit of the astonished boatman still lying on his oars.

"Let this be a lesson to ye, ma fren, when ye're ower sure! Ye'll ne'er say a herrin' is dry until it be reestit an' reckit."

"Ay," said the boatman, with a lazy, significant glance at the Consul. "It wull be a lesson to me not to trust to a lassie's gangin go, when thar's anither one a comin'."

"Give way," said the Consul sharply.

Yet his was the only irritated face in the boat as the men bent over their oars. The young girl and her father looked placidly at the receding ship, and waved their hands to the grave, resigned face over the taffrail. The Consul examined them more attentively. The father's face showed intelligence and a certain probity in its otherwise commonplace features. The young girl had more distinction, with, perhaps, more delicacy of outline than of texture. Her hair was dark, with a burnished copper tint at its roots, and eyes that had the same burnished metallic lustre in their brown pupils. Both sat respectfully erect, as if anxious to record the fact that the boat was not their own to take their ease in; and both were silently reserved, answering briefly to the Consul's remarks, as if to vindicate the formality of their presence there. But a distant railway whistle startled them into emotion.

"We've lost the train, father!" said the young girl.

The Consul followed the direction of her anxious eyes; the train was just quitting the station at Bannock.

"If ye had not lingered below with Jamie, we'd have been away in time, and, ay, in our own boat," said the father, with marked severity.

The Consul glanced quickly at the girl, but her face betrayed no consciousness except of their present disappointment.

"There's an excursion boat coming round the Point," he said, pointing to the black smoke trail of a steamer at the entrance of a loch, "and it will be returning to St.

Kentigern shortly. If you like, we'll pull over and put you aboard."

"Eh! but it's the Sabbath-breaker!" said the old man, harshly.

The Consul suddenly remembered that that was the name which the righteous St. Kentigerners had given to the solitary bold, bad pleasure boat that defied their Sabbatical observances.

"Perhaps you won't find very pleasant company," said the Consul, smiling; "but, then, you're not seeking that. And as you would be only using the boat to get back to your home, and not for Sunday recreation, I don't think your consciences should trouble you."

"Ay, that's a fine argument, Mr. Consul, but I'm thinking it's none the less sopheestry, for a' that," said the father grimly. "No; if ye'll just land us at yonder Bannock pier, we'll be aye thankin' ye the same."

"But what will you do there? There's no other train to-day."

"Ay, we'll walk on a bit."

The Consul was silent. After a pause the young girl lifted her clear eyes, and, with a half pathetic, half childish courtesy, said: "We'll be doing very well—my father and me. You're far too kind."

Nothing further was said as they began to thread their way between a few large ships and an ocean steamer at anchor, from whose decks a few Sunday-clothed mariners gazed down admiringly on the smart gig and the pretty girl in a Tam o' Shanter in its stern-sheets. But here a new idea struck the Consul. A cable's length ahead lay a yacht, owned by an American friend, and at her stern a steam launch swung to its painter. Without intimating his intention to his passengers, he steered for it. "Bow, way enough!" he called out as the boat glided under the yacht's counter, and, grasping the companion ladder ropes, he leaped aboard. In a few hurried words he explained the situation to Mr. Robert Grey, her owner, and suggested that he should send the belated passengers to St. Kentigern by the launch. Grey assented with the easy good nature of youth, wealth, and indolence, and lounged from his cabin to the side. The Consul followed. Looking down upon the boat he could not help observing that his fair young passenger, sitting in her demure stillness at her father's side, made a very pretty picture. It was possible that "Bob Grey" had made the same observation, for he presently swung himself over the gangway into the gig, hat in hand. The launch could easily take them; in fact, he added unblushingly, it was even then getting up steam to go to St. Kentigern. Would they kindly come on board until it was ready? At an added word or two of explanation from the Consul, the father accepted, preserving the same formal pride and stiffness, and the transfer was made. The Consul, looking back as his gig swept round again toward Bannock pier, received their parting salutations and the first smile he had seen on the face of his grave little passenger. He thought it very sweet and sad.

He did not return to the Consulate at St. Kentigern until the next day. But he was somewhat surprised to find Mr. Robert Grey awaiting him, and upon some business which the young millionnaire could have easily deputed to his captain or steward. As he still lingered, the Consul pleasantly referred to his generosity on the previous day, and hoped the passengers had given him no trouble.

"No," said Grey, with a slight simulation of carelessness. "In fact, I came up with them myself. I had nothing to do; it was Sunday, you know."

The Consul lifted his eyebrows slightly.

"Yes, I saw them home," continued Grey lightly. "In one of those by-streets not far from here; neat-looking house outside; inside, corkscrew stone staircase, like a lighthouse; fourth floor, no lift, but she circled up like a swallow. Flat—sitting-room, two bedrooms, and a kitchen—mighty snug and shipshape, and pretty as a pink. They own it, too—fancy owning part of a house! Seems to be a way they have here in St. Kentigern." He paused, and then added: "Stayed there to a kind of high tea."

"Indeed!" said the Consul.

"Why not? The old man wanted to return my 'hospitality' and square the account. He wasn't going to lie under any obligation to a stranger, and, by Jove! he made it a special point of honor. A Spanish grandee couldn't have been more punctilious. And with an accent, Jerusalem! like a northeaster off the Banks! But the feed was in good taste, and he only a mathematical instrument maker, on about twelve hundred dollars a year."

"You seem to know all about him," said the Consul, smilingly.

"Not so much as he does about me," returned Grey, with a half-perplexed face; "for he saw enough to admonish me about my extravagance, and even to intimate that that rascal Saunderson, my steward, was imposing on me. She took me to task,

too, for not laying the yacht up on Sunday, that the men could go 'to kirk,' and for swearing at a bargeman who ran across our bows. It's their perfect simplicity and sincerity in all this, that gets me. You'd have thought that the old man was my guardian, and the daughter my aunt." After a pause he uttered a reminiscent laugh. "She thought we ate and drank too much on the yacht, and wondered what we could find to do all day. All this, you know, in the gentlest, caressing sort of voice, as if she was really concerned, like one's own sister. Well, not exactly like mine," he interrupted himself, grimly; "but, hang it all, you know what I mean. You know that our girls over there haven't got that trick of voice—too much self-assertion, I reckon; things made too easy for them by us men. Habit of race, I dare say." He laughed a little. "Why, I mislaid my glove when I was coming away, and it was as good as a play to hear her commiserating and sympathizing and hunting for it as if I were a lost baby."

"But you've seen Scotch girls before this," said the Consul. "There were Lady Glairn's daughters, whom you took on a cruise."

"Yes, but the swell Scotch all imitate the English, as everybody else does, for the matter of that, our girls included; and they're all alike. Society makes 'em fit in together like tongued and grooved planks that will take any amount of holystoning and polish. It's like dropping into a dead calm, with every rope and spar that you know already reflected back from the smooth water upon you. It's mighty pretty, but it isn't getting on, you know." After a pause, he added: "I asked them to take a little holiday cruise with me."

"And they declined?" said the Consul.

"THE CONSUL WILL NOT BE REMEMBERING WHAT HE HEARS OF ALL THE SHIPS," INTERPOSED THE YOUNG GIRL.

Grey glanced at him quickly.

"Well, yes; that's all right enough. They don't know me, you see, but they do know you; and the fact is, I was thinking that as you're our Consul here, don't you see, and sort of responsible for me, you might say that it was all right, you know. Quite the customary thing with us over there. And you might say, generally, who I am."

"I see," said the Consul, deliberately. "Tell them you're Bob Grey, with more money and time than you know what to do with; that you have a fine taste for yachting and shooting and racing and amusing

yourself generally; that you find that they amuse you, and you would like your luxury and your dollars to stand as an equivalent to their independence and originality; that, being a good republican yourself, and recognizing no distinction of class, you don't care what this may mean to them, who are brought up differently; that after their cruise with you, you don't care what life, what friends, or what jealousies they return to; that you know no ties, no responsibilities beyond the present, and that you are not a marrying man."

"Look here, I say, aren't you making a little too much of this?" said Grey stiffly.

The Consul laughed. "I should be glad to know that I am."

Grey rose. "We'll be dropping down the river to-morrow," he said, with a return of his usual lightness, "and I reckon I'll be toddling down to the wharf. Good-by, if I don't see you again."

He passed out. As the Consul glanced from the window, he observed, however, that Mr. Grey was "toddling" in quite another direction than the wharf. For an instant he half regretted that he had not suggested, in some discreet way, the conclusion he had arrived at after witnessing the girl's parting with the middle-aged passenger the day before. But he reflected that this was something he had only accidentally overseen, and was the girl's own secret.

II.

When the summer had so waxed in its fulness that the smoke of factory chimneys drifted high, permitting glimpses of fairly blue sky; when the grass in St. Kentigern's proudest park took on a less sober green in the comfortable sun, and even in the thickest shade there was no chilliness, the good St. Kentigerners recognized that the season had arrived to go "down the river," and that it was time for them to betake themselves with rugs, mackintoshes, and umbrellas, to the breezy lochs and misty hillsides for which the neighborhood of St. Kentigern was justly famous. So when it came to pass that the blinds were down in the highest places, and the most exclusive pavements of St. Kentigern were echoless and desolate, the Consul heroically tore himself from the weak delight of basking in the sunshine, and followed the others.

He soon found himself settled at the farthest end of a long, narrow loch, made longer and narrower by the steep hillside of rock and heather which flanked its chilly surface on either side, and whose inequalities were lost in the firs and larches that filled ravine and chasm. The fragrant road which ran sinuously through their shadowy depths was invisible from the loch; no protuberance broke the seemingly sheer declivity; the even sky line was indented in two places; one where it was cracked into a fanciful resemblance to a human profile, the other where it was curved like a bowl. Need it be said that one was distinctly recognized as the silhouette of a prehistoric giant, and that the other was his drinking cup? Need it be added that neither lent the slightest human suggestion to the solitude? A toy-like pier extending into the loch, midway from the barren shore, only heightened the desolation. And when the little steamboat that occasionally entered the loch took away a solitary passenger from the pierhead, the simplest parting was invested with a dreary loneliness that might have brought tears to the most hardened eye.

Still, when the shadow of either hillside was not reaching across the loch, the meridian sun, chancing upon this coy mirror, made the most of it. Then it was that, seen from above, it flashed like a falchion lying between the hills; then its reflected glory, striking up, transfigured the two acclivities, tipped the cold heather with fire, gladdened the funereal pines, and warmed the ascetic rocks. And it was in one of those rare, passionate intervals that the Consul, riding along the wooded track, and turning his eyes from their splendors, came upon a little house.

It had once been a sturdy cottage, with a grim endurance and inflexibility which even some later and lighter additions had softened rather than changed. On either side of the door, against the bleak white-washed wall, the tall fuchsias relieved the rigid blankness with a show of color. The windows were prettily draped with curtains caught up with gay ribbons. In a stony, pond-like enclosure there was some attempt at floral cultivation, but all quite recent. So, too, were a wicker garden seat, a bright Japanese umbrella, and a tropical hammock suspended between two Arctic-looking bushes, which the rude forefathers of the hamlet would have probably resented.

He had just passed the house when a charming figure slipped across the road before him. To his surprise it was the young girl he had met a few months before on the "Skyscraper." But the Tam O'Shanter was replaced by a little straw hat, and a light dress, summery in color and texture, but more in keeping with her rustic sur-

roundings, seemed as grateful and rare as the sunshine. Without knowing why, he had an impression that it was of her own making—a gentle plagiarism of the style of her more fortunate sisters, but with a demure restraint all her own. As she recognized him a faint color came to her cheek, partly from surprise, partly from some association. To his delighted greeting she responded by informing him that her father had taken the cottage he had just passed, where they were spending a three weeks' vacation from his business. It was not so far from St. Kentigern but that he could run up for a day to look after the shop. Did the Consul not think it was wise?

Quite ready to assent to any sagacity in those clear brown eyes, the Consul thought it was. But was it not, like wisdom, sometimes lonely?

Ah, no! There was the loch and the hills and the heather; there were her flowers; did he not think they were growing well? and at the head of the loch there was the old tomb of the McHulishes, and some of the coffins were still to be seen.

Perhaps emboldened by the Consul's smile, she added, with a more serious precision, which was lost in the sympathizing caress of her voice: "And would you not be getting off and coming in and resting a wee bit before you go farther? It would be so good of you, and father would think it so kind. And he will be there now, if you are looking."

The Consul looked. The old man was standing in the doorway of the cottage, as respectably uncompromising as ever, with the slight concession to his rural surroundings of wearing a Tam O'Shanter and easy slippers. The Consul dismounted and entered. The interior was simply but tastefully furnished. It struck him that the Scotch prudence and economy, which practically excluded display and meretricious glitter, had reached the simplicity of the truest art and the most refined wealth. He felt he could understand Grey's enthusiasm; and, by an odd association of ideas, he found himself thinking of the resigned face of the passenger on the "Skyscraper."

"Have you heard any news of your friend who went to Rio?" he asked pleasantly, but without addressing himself particularly to either.

There was a perceptible pause; doubtless of deference to her father on the part of the young girl, and of the usual native conscientious caution on the part of the father, but neither betrayed any embarrassment or emotion. "No: he would not be writing yet," she at length said simply; "he would be waiting until he was settled to his business. Jamie would be waiting until he could say how he was doing, father," she appealed interrogatively to the old man.

"Ay, James Gow would not fash himself to write compliments and gossip till he knew his position and work," corroborated the old man. "He'll not be going two thousand miles to send us what we can read in the 'St. Kentigern News.' But," he added suddenly, with a recall of cautiousness, "perhaps you will be hearing of the ship?"

"The Consul will not be remembering what he hears of all the ships," interposed the young girl, with the same gentle affectation of superior worldly knowledge which had before amused him. "We'll be wearying him, father," and the subject dropped.

The Consul, glancing around the room again, but always returning to the sweet and patient seriousness of the young girl's face and the grave decorum of her father, would have liked to ask another question, but it was presently anticipated; for when he had exhausted the current topics, in which both father and daughter displayed a quiet sagacity, and he had gathered a sufficient knowledge of their character to seem to justify Grey's enthusiasm, and was rising to take his leave, the young girl said timidly:

"Would ye not let Bessie take your horse to the grass field over yon, and yourself stay with us to dinner? It would be most kind, and you would meet a great friend of yours who will be here."

"Mr. Grey?" suggested the Consul, audaciously. Yet he was greatly surprised when the young girl said quietly, "Ay."

"He'll be coming in the loch with his yacht," said the old man. "It's not so expensive lying here as at Bannock, I'm thinking; and the men cannot gang ashore for drink. Eh, but it's an awful waste o' pounds, shillings, and pence, keeping these gowks in idleness with no feeshin' nor carrying of passengers."

"Ay, but it's better Mr. Grey should pay them for being decent and well-behaved on board his ship than that they should be out of work, and rioting in taverns and lodging houses. And you yourself, father, remember the herrin' fishers that come ashore at Ardie, and the deck hands of the excursion boat, and the language they'll be using."

"Have you had a cruise in the yacht?" asked the Consul quickly.

"Ay," said the father, "we have been

up and down the loch, and around the far point, but not for boardin' or lodgin' the night, nor otherwise conteenuing or parteecipating. I have explained to Mr. Grey that we must return to our own home and our own porridge at evening, and he has agreed, and even come with us. He's a decent lad, and not above instructin', but extraordinar' extravagant."

"Ye know, father," interposed the young girl, "he talks of fitting up the yacht for the fishing, and taking some of his most decent men on shares. He says he was very fond of fishing off the Massachusetts coast in America. It will be, I'm thinking," she said, suddenly turning to the Consul with an almost pathetic appeal in her voice, "a great occupation for the rich young men over there."

The Consul, desperately struggling with a fanciful picture of Mr. Robert Grey as a herring fisher, thought gravely that it "might be." But he thought still more gravely, though silently, of this singular companionship, and was somewhat anxious to confront his friend with his new acquaintances. He had not long to wait. The sun was just dipping behind the hill when the yacht glided into the lonely loch. A boat was put off, and in a few moments Robert Grey was climbing the little path from the loch.

Had the Consul expected any embarrassment or lover-like consciousness on the face of Mr. Grey at their unexpected meeting, he would have been disappointed. Nor was the young man's greeting of father and daughter, whom he addressed as Mr. and Miss Callender, marked by any tenderness or hesitation. On the contrary, a certain seriousness and quiet reticence, unlike Grey, which might have been borrowed from his new friends, characterized his speech and demeanor. Beyond this free-masonry of sad repression there was no significance of look or word passed between these two young people. The girl's voice retained its even pathos. Grey's grave politeness was equally divided between her and her father. He corroborated what Callender had said of his previous visits without affectation or demonstration; he spoke of the possibilities of his fitting up the yacht for the fishing season with a practical detail and economy that left the Consul's raillery ineffective. Even when, after dinner, the Consul purposely walked out in the garden with the father, Grey and Ailsa presently followed them, without lingering or undue precipitation, and with no change of voice or manner. The Consul was perplexed. Had the girl already told Grey of her lover across the sea, and was this singular restraint their joint acceptance of their fate; or was he mistaken in supposing that their relations were anything more than the simple friendship of patron and *protégé*? Grey was rich enough to indulge in such a fancy, and the father and daughter were too proud to ever allow it to influence their own independence. In any event, the Consul's right to divulge the secret he was accidentally possessed of seemed more questionable than ever. Nor did there appear to be any opportunity for a confidential talk with Grey, since it was proposed that the whole party should return to the yacht for supper, after which the Consul should be dropped at the pier-head, distant only a few minutes from his hotel, and his horse sent to him the next day.

A faint moon was shimmering the surface of Loch Dour with icy little ripples when they pulled out from the shadows of the hillside. By the accident of position, Grey, who was steering, sat beside Ailsa in the stern, while the Consul and Mr. Callender were farther away, although within hearing. The faces of the young people were turned toward each other, yet in the cold moonlight the Consul fancied they looked as impassive and unemotional as statues. The few distant, far-spaced lights that trembled on the fading shore, the lonely glitter of the water, the blackness of the pine-clad ravines, seemed to be a part of the repression, until the vast melancholy of the lake appeared to meet and overflow them like an advancing tide. Added to this, there came from time to time the faint sound and smell of the distant, desolate sea.

The Consul, struggling manfully to keep up a spasmodic discussion on Scotch diminutives in names, found himself mechanically saying:

"And 'James' you call 'Jamie'?"

"Ay; but ye would say, to be pure Scotch, 'Hamish,'" said Mr. Callender, precisely. The girl, however, had not spoken. But Grey turned to her with something of his old gayety:

"And I suppose you would call me Robbie?"

"Ah, no!"

"What then?"

"Robin."

Her voice was low, yet distinct; but she had thrown into the two syllables such infinite tenderness that the Consul was for

GREY, WHO WAS STEERING, SAT BESIDE AILSA IN THE STERN.

an instant struck with an embarrassment akin to that he had felt in the cabin of the "Skyscraper," and half expected the father to utter a shocked protest. And to save what he thought might be an appalling silence, he said, with a quiet laugh:

"That's the fellow who 'made the assembly shine,' in the song, isn't it?"

"That was Robin Adair," said Grey quietly; "unfortunately I would only be Robin Grey, and that's quite another song."

"*Auld* Robin Grey, sir; deestinctly 'auld' in the song," interrupted Mr. Callender with stern precision; "and I'm thinking he was not so very unfortunate either."

The discussion of Scotch diminutives halting here, the boat sped on silently to the yacht. But although Robert Grey, as host, recovered some of his usual light-heartedness, the Consul failed to discover anything in his manner to indicate the lover; nor did Miss Ailsa, after her single lapse of tender accent, exhibit the least consciousness. It was true that their occasional frank allusions to previous conversations seemed to show that their opportunities had not been restricted, but nothing more. He began again to think he was mistaken.

As he wished to return early, and yet not hasten the Callenders, he prevailed upon Grey to send him to the pierhead first, and not disturb the party. As he stepped into the boat, something in the appearance of the coxswain awoke an old association in his mind. The man at first seemed to avoid his scrutiny, but when they were well away from the yacht, he said hesitatingly:

"I see you remember me, sir. But if it's all the same to you, I've got a good berth here, and would like to keep it."

The Consul had a flash of memory. It was the boatswain of the "Skyscraper," one of the least objectionable of the crew. "But what are you doing here? You shipped for the voyage," he said sharply.

"Yes, but I got away at Key West when I knew what was coming. I wasn't on her when she was abandoned."

"Abandoned!" repeated the Consul. "Do you mean to say she was wrecked?"

"Well, yes—you know what I mean, sir. It was an understood thing. She was over-insured, and scuttled in the Bahamas. It was a put-up job, and I reckoned I was well out of it."

"But there was a passenger! What of him?" demanded the Consul, anxiously.

"Dunno. But I reckon he got away. There wasn't any of the crew lost that I know of. Let's see; he was an engineer, wasn't he? I reckon he had to take a hand at the pumps, and his chances with the rest."

"Does Mr. Grey know of this?" asked the Consul after a pause.

The man stared.

"Not from me, sir. You see it was nothin' to him, and I didn't care talking

much about the 'Skyscraper.' It was hushed up in the papers. You won't go back on me, sir?"

"You don't know what became of the passenger?"

"No. But he was a Scotchman, and they're bound to fall on their feet somehow."

III.

THE December fog that overhung St. Kentigern had thinned sufficiently to permit the passage of a few large snowflakes, soiled in their descent until in color and consistency they spotted the steps of the Consulate and the umbrellas of the passers-by like sprinklings of gray mortar. Nevertheless the Consul thought the streets preferable to the persistent gloom of his office, and sallied out. Youthful mercantile St. Kentigern strode sturdily past him in the lightest covert coats; collegiate St. Kentigern fluttered by in the scantiest of red gowns, shaming the furs that defended his more exotic blood; and the bare red feet of a few factory girls, albeit their heads and shoulders were draped and hooded in thick shawls, filled him with a keen sense of his effeminacy. Everything of earth, air, and sky, and even the faces of those he looked upon, seemed to be set in the hard, patient endurance of the race. Everywhere on that dismal day he fancied he could see this energy without restlessness, this earnestness without geniality, all grimly set against the hard environment of circumstance and weather.

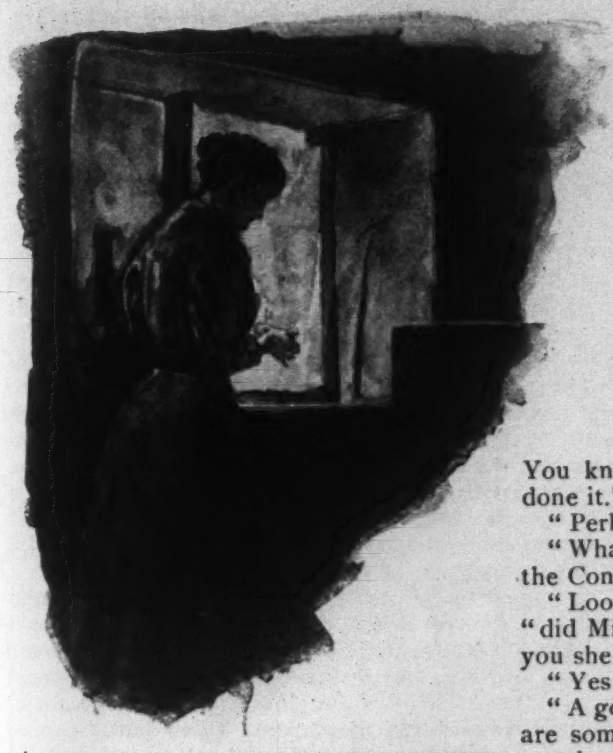
The Consul turned into one of the main arteries of St. Kentigern, a wide street that, however, began and ended inconsequently, and with half a dozen social phases in as many blocks. Here the snow ceased, the fog thickened suddenly with the waning day, and the Consul found himself isolated and cut off on a block which he did not remember, with the clatter of an invisible tramway in his ears. It was a block of small houses with smaller shop fronts. The one immediately before him seemed to be an optician's, but the dimly lighted windows also displayed the pathetic reinforcement of a few watches, cheap jewelry on cards, and several cairngorm brooches and pins set in silver. It occurred to him that he wanted a new watch crystal, and that he would procure it here and inquire his way. Opening the door, he perceived that there was no one in the shop, but from behind the counter another open door disclosed a neat sitting-room so close to the street that it gave the casual customer the sensation of having intruded upon domestic privacy. The Consul's entrance tinkled a small bell, which brought a figure to the door. It was Ailsa Callender.

The Consul was startled. He had not seen her since he had brought to their cottage the news of the shipwreck, with a precaution and delicacy that their calm self-control and patient resignation, however, seemed to make almost an impertinence. But this was no longer the handsome shop in the chief thoroughfare, with its two shopmen, which he previously knew as "Callender's." And Ailsa here! What misfortune had befallen them?

Whatever it was, there was no shadow of it in her clear eyes and frank yet timid recognition of him. Falling in with her stoical and reticent acceptance of it, he nevertheless gathered that the Callenders had lost money in some invention which James Gow had taken with him to Rio, but which was sunk in the ship. With this revelation of a business interest in what he had believed was only a sentimental relation, the Consul ventured to continue his inquiries. Mr. Gow had escaped with his life and had reached Honduras, where he expected to try his fortunes anew. It might be a year or two longer before there were any results. Did the Consul know anything of Honduras? There was coffee there—so she and her father understood. All this with little hopefulness, no irritation, but a divine patience in her eyes. The Consul, who found that his watch required extensive repairing, and had suddenly developed an inordinate passion for cairngorms, watched her as she opened the showcase with no affectation of unfamiliarity with her occupation, but with all her old serious concern. Surely she would have made as thorough a shopgirl as she would— His half formulated thought took the shape of a question.

"Have you seen Mr. Grey since his return from the Mediterranean?"

Ah! one of the brooches had slipped from her fingers to the bottom of the case. There was an interval or two of pathetic murmuring, with her fair head under the glass, before she could find it; then she lifted her eyes to the Consul. They were still slightly suffused with her sympathetic concern. The stone, which was set in a thistle—the national emblem—did he not know it?—had dropped out. But she could put it in. It was pretty and not expensive. It was marked twelve shillings on the card, but he could have it for ten shillings. No,



AH! ONE OF THE BROOCHES HAD SLIPPED FROM HER FINGERS.

she had not seen Mr. Grey since they had lost their fortune. (It struck the Consul as none the less pathetic that she seemed really to believe in their former opulence.) They could not be seeing him there in a small shop, and they could not see him elsewhere. It was far better as it was. Yet she paused a moment when she had wrapped up the brooch. "You'd be seeing him yourself sometimes?" she added gently.

"Perhaps."

"Then you'll not mind saying how my father and myself are sometimes thinking of his goodness and kindness," she went on, in a voice whose tenderness seemed to increase with the formal precision of her speech.

"Certainly."

"And you'll say we're not forgetting him."

"I promise."

As she handed him the parcel, her lips softly parted in what might have been equally a smile or a sigh.

He was able to keep his promise sooner than he had imagined. It was only a few weeks later that, arriving in London, he found Grey's hatbox and bag in the vestibule of his club, and that gentleman himself in the smoking-room. He looked tanned and older.

"I only came from Southampton an hour ago, where I left the yacht. And," shaking the Consul's hand cordially, "how's everything and everybody up at old St. Kentigern?"

The Consul thought fit to include his news of the Callenders in reference to that query, and, with his eyes fixed on Grey, dwelt at some length on their change of fortune. Grey took his cigar from his mouth, but did not lift his eyes from the fire. Presently he said: "I suppose that's why Callender declined to take the shares I offered him in the fishing scheme. You know I meant it, and would have done it."

"Perhaps he had other reasons."

"What do you mean?" said Grey, facing the Consul suddenly.

"Look here, Grey," said the Consul, "did Miss Callender or her father ever tell you she was engaged?"

"Yes; but what's that to do with it?"

"A good deal. Engagements, you know, are sometimes forced, unsuitable, or unequal, and are broken by circumstances. Callender is proud."

Grey turned upon the Consul the same look of gravity that he had worn on the yacht—the same look that the Consul even fancied that he had seen in Ailsa's eyes. "That's exactly where you're mistaken in her," he said slowly. "A girl like that gives her word and keeps it. She waits, hopes, accepts what may come—breaks her heart, if you will, but not her word. Come, let's talk of something else. How did he—that man Gow—lose Callender's money?"

The Consul did not see the Callenders again on his return, and perhaps did not think it necessary to report the meeting. But one morning he was delighted to find an official document from New York upon his desk, asking him to communicate with David Callender of St. Kentigern, and, on proof of his identity, giving him authority to draw the sum of five thousand dollars, damages awarded for the loss of certain property on the "Skyscraper," at the request of James Gow. Yet it was with mixed sensations that the Consul sought the little shop of the optician with this convincing proof of Gow's faithfulness and the indissolubility of Ailsa's engagement. That there was some sad understanding between the girl and Grey he did not doubt, and perhaps it was not strange that he felt a slight

partisanship for his friend, whose nature had so strangely changed. Miss Ailsa was not there. Her father explained that her health had required a change, and she was visiting some friends on the river.

"I'm thinkin' that the atmosphere is not so pure here. It is deficient in ozone. I noticed it myself in the early morning. It was not the confinement of the shop, for she never cared to go out."

He received the announcement of his good fortune with unshaken calm and great practical consideration of detail. He would guarantee his identity to the Consul. As for James Gow, it was no more than fair, and what he had expected from him. As to its being an equivalent of his loss, he could not tell until the facts were before him.

"Miss Ailsa," suggested the Consul, venturously, "will be pleased to hear again from her old friend, and know that he is succeeding."

"I'm not so sure that ye could call it 'succeeding,'" returned the old man, carefully wiping the glasses of a pair of spectacles that he held critically to the light, "when ye consider that, saying nothing of the waste of valuable time, it only puts James Gow back where he was when he went away."

"But any man who has had the pleasure of knowing Mr. and Miss Callender would be glad to be on that footing," said the Consul, with polite significance.

"I'm not agreeing with you there," said Mr. Callender quietly; "and I'm observing in ye of late a tendency to combine business wi' compleement. But it was kind of ye to call, and I'll be sending ye the authorization."

Which he did. But the Consul, passing through the locality a few weeks later, was somewhat concerned to find the shop closed, with others on the same block, behind a boarding that indicated rebuilding and improvement. Further inquiry elicited the fact that the small leases had been bought up by some capitalist, and that Mr. Callender, with the others, had benefited thereby. But there was no trace nor clue to his present locality. He and his daughter seemed to have again vanished with this second change in their fortunes.

It was a late March morning, when the streets were dumb with snow, and the air was filled with flying granulations that tinkled against the windows of the Consulate like fairy sleigh-bells, when there was the stamping of snow-clogged feet in the outer hall, and the door was opened to Mr. and Miss Callender. For an instant the Consul was startled. The old man appeared as usual — erect, and as frigidly respectable as one of the icicles that fringed the window; but Miss Ailsa was, to his astonishment, brilliant with a new-found color, and sparkling with health and only half-repressed animation. The snow-flakes, scarcely melting on the brown head of this true daughter of the North, still crowned her hood; and as she threw back her brown cloak and disclosed a plump little scarlet jacket and brown skirt, the Consul could not resist her suggested likeness to some bright-eyed robin redbreast, to whom the inclement weather had given a charming audacity. And shy and demure as she still was, it was evident that some change had been wrought in her other than that evoked by the stimulus of her native sky and air.

To his eager questioning, the old man replied briefly that he had bought the old cottage at Loch Dour, where they were living, and where he had erected a small manufactory and laboratory for the making of his inventions, which had become profitable. The Consul reiterated his delight at meeting them again.

"I'm not so sure of that, sir, when you know the business on which I come," said Mr. Callender, dropping rigidly into a chair, and clasping his hands over the crutch of a shepherd-like staff. "Ye mind, perhaps, that ye conveyed to me, osteensibly at the request of James Gow, a certain sum of money, for which I gave ye a good and sufficient guarantee. I thought at the time that it was a most feckless and unbusiness-like proceeding on the part of James, as it was without corroboration or advice by letter; but I took the money."

"Do you mean to say that he made no allusion to it in his other letters?" interrupted the Consul, glancing at Ailsa.

"There were no other letters at the time," said Callender, dryly. "But about a month afterward we did receive a letter from him enclosing a draft and a full return of the profits of the invention which he had sold in Honduras. Ye'll observe the deescrepancy! I then wrote to the bank on which I had drawn as you authorized me, and I found that they knew nothing of any damages awarded, but that the sum I had drawn had been placed to my credit by Mr. Robert Grey."

In a flash the Consul recalled the one or two questions that Grey had asked him, and saw it all. For an instant he felt

AND THE DOOR OPENED TO MR. AND MISS CALLENDER.

the whole bitterness of Grey's misplaced generosity—its exposure and defeat. He glanced again hopelessly at Ailsa. In the eye of that fresh, glowing, yet demure young goddess, unhallowed as the thought might be, there was certainly a distinctly tremulous wink.

The Consul took heart. "I believe I need not say, Mr. Callender," he began with some stiffness, "that this is as great a surprise to me as to you. I had no reason to believe the transaction other than *bona fide*, and acted accordingly. If my friend, deeply sympathizing with your previous misfortune, has hit upon a delicate but unbusiness-like way of assisting you temporarily—I say temporarily, because it must have been as patent to him as to you that you would eventually find out his generous deceit—you surely can forgive him for the sake of his kind intention. Nay, more, may I point out to you

that you have no right to assume that this benefaction was intended exclusively for you? If Mr. Grey, in his broader sympathy with you and your daughter, has in this way chosen to assist and strengthen the position of a gentleman so closely connected with you, but still struggling with hard fortune——"

"I'd have ye know, sir," interrupted the old man, rising to his feet, "that ma fren' Mr. James Gow is as independent of yours as he is of me and mine. He has married, sir, a Mrs. Hernandez, the rich widow of a coffee planter, and now is the owner of the whole estate, minus the encumbrance of three children. And now, sir, you'll take this"—he drew from his pocket an envelope. "It's a draft for five thousand dollars, with the ruling rate of interest computed from the day I received it till this day, and ye'll give it to your fren' when ye see him. And ye'll just say to him from me——"

But Miss Ailsa, with a spirit and independence that challenged her father's, here suddenly fluttered between them with sparkling eyes and outstretched hands.

"And ye'll say to him from me, that a more honorable, noble, and generous man, and a kinder, truer, and better friend than he, cannot be found anywhere. And that the foolishest and most extravagant thing he ever did is better than the wisest and most prudent thing that anybody else ever did, could, or would do. And if he was a bit overproud, it was only because those about him were overproud and foolish. And you'll tell him that we're wearying for him. And when you give him that draft letter from father, you'll give him this bit line from me," she went on rapidly, as she laid a tiny note in his hand. "And," with wicked, dancing eyes that seemed to snap the last bond of repression, "ye'll give him that, too, and say I sent it."

There was a stir in the official department. The portraits of Lincoln and Washington rattled uneasily in their frames; but it was no doubt only a discreet blast of the north wind that drowned the echo of a kiss.

"Ailsa!" gasped the shocked Mr. Callender.

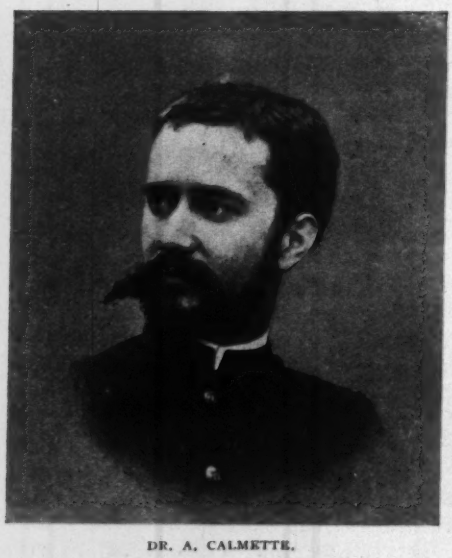
"Ah! but, father, if it had not been for him we would not have known Robin."

It was the last that the Consul saw of Ailsa Callender; for the next summer when he called at Loch Dour she was Mrs. Grey.

INOCULATION AGAINST SNAKE POISON.

DR. CALMETTE'S EXPERIMENTS AT THE PASTEUR INSTITUTE, PARIS.

By Henry J. W. Dam.



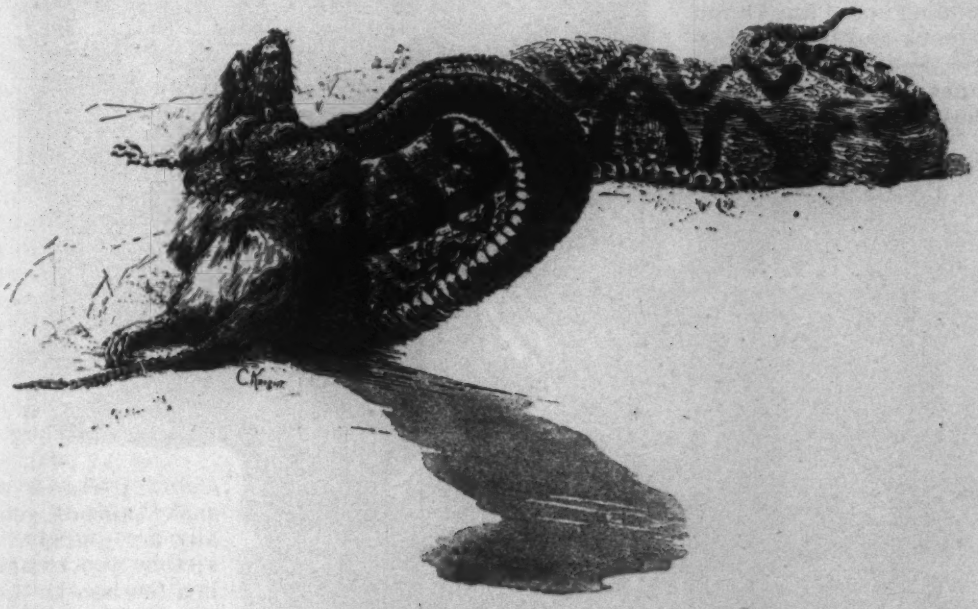
DR. A. CALMETTE.

ONE of the most interesting, as well as one of the most successful, branches of contemporary scientific research, is the endeavor to find antidotes for the well-known poisons. But a few months ago the discovery of the antidote for morphine, by an American physician, excited the liveliest interest in the medical circles of London and Paris; and a similar stir has just been produced by Dr. Johann Ancal, the eminent Hungarian toxicologist, who has found a perfect antidote for prussic acid in the shape of nitrate of cobalt.

Wider in scope than either of these discoveries, however, and perhaps far more important to the world in general, is the work, now crowned with complete success, of Dr. A. Calmette of Paris. He has been experimenting for a year past upon poisonous snakes, and through his researches the deadliest serpents of the world have ceased to be deadly. The rattlesnake, the cobra, the adder, and the viper, the terrors of four continents,

have all surrendered their fatality to the ingenious methods and painstaking experiments of modern therapeutic inoculation.

The announcement of Dr. Calmette's success has excited enormous interest, particularly in India and in Indian circles in London. Two competitors have already risen in Paris to dispute his priority in the discovery, but his long and painstaking researches speak for themselves; and in the coming years, whenever an unlucky woodsman, bitten by rattlesnake or cobra, takes a subcutaneous injection and goes on his way rejoicing, though he may present his thanks in other directions, he will certainly murmur also the name of Calmette.



THE GABOON VIPER.

A BOX OF DEADLY SNAKES.

A few weeks ago, in a visit to the Pasteur Institute in Paris, I came upon a large glass box in the laboratory of Dr. Roux, which box, with its occupants, was about as ugly a sight as the human mind could conceive. It contained a great squirming mass of the deadly snakes of India, Africa, and Australia. Cobras, vipers, and adders, horned and unhorned, were tangled and intertwined in a knot, whose ugliness appeared to increase in a geometrical ratio with their number. They were without apparent fear of each other, but were in active opposition to any interference from the world outside. Three white mice were skipping about over the backs of the snakes, and showed no consciousness of their danger, the snakes, meanwhile, viewing the activity of their locomotive breakfasts with complacency. Whenever the mice were struck by a reptilian epicure desirous of dining, they settled down in a corner and were shortly swallowed, the snakes never having any differences of opinion over the proprietorship of the meal. The respect which poisonous snakes show each other is very much like the harmony which exists in any other bands of desperate conspirators. Whether it arises from the fear of each other's prowess, or from the interesting fact developed by Dr. Calmette that every venomous snake is proof against the poison of other snakes, in direct proportion to his own deadliness, is an interesting question in reptilian psychology; but the invariable good temper manifested toward each other under confined and unpleasant conditions is undeniable.

These snakes have been furnished free of expense to Dr. Calmette, and out of regard for the important quest he has undertaken. He has also obtained, as far as possible, bottles of their venom, to avoid the collecting of it from each snake direct, which is always a work of some difficulty and danger.

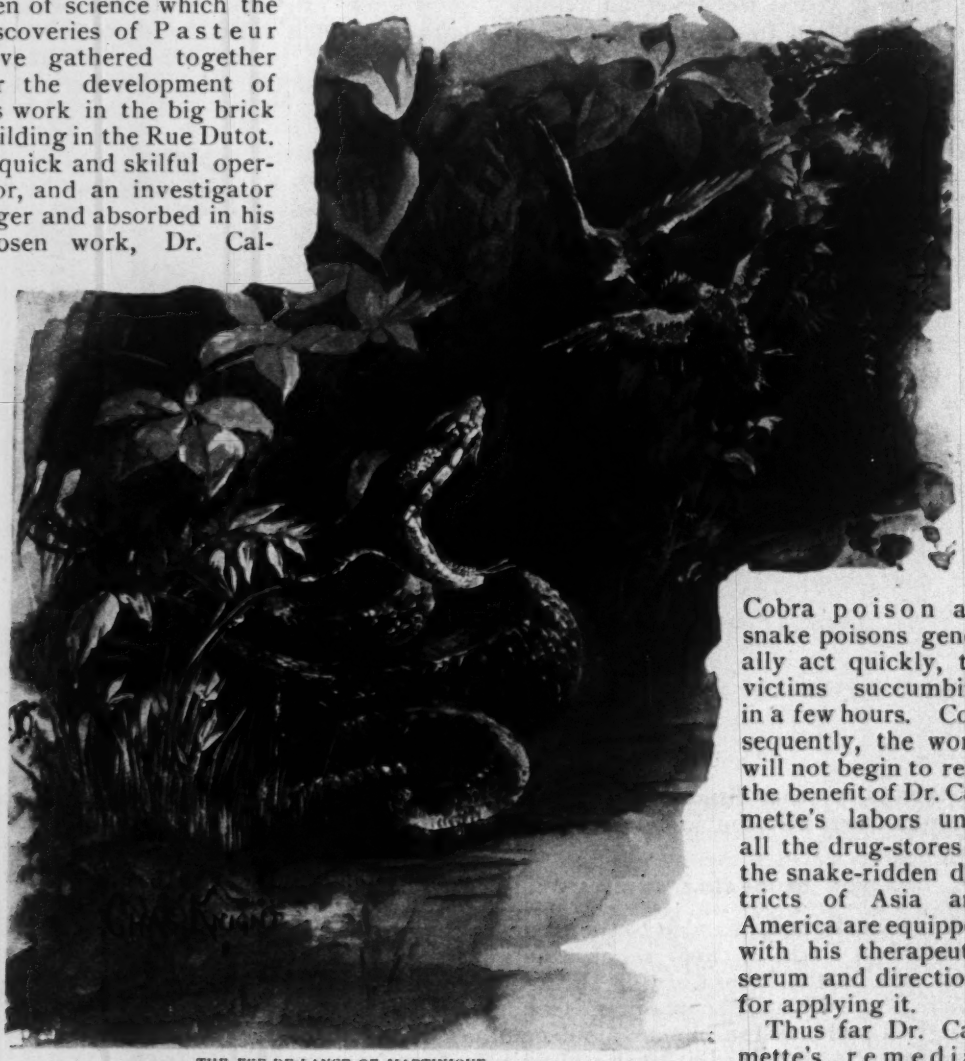
Generally speaking, Dr. Calmette's method of vaccinating against the bite, or of treating persons already bitten, has been the inoculative one pursued in the case of

hydrophobia from dog bites, though the special attributes of snake poison cause it to fall more particularly into the class of investigations pursued by Dr. Roux for diphtheria and tetanus.

DOCTOR CALMETTE IN PERSON.

The snake conqueror is a typical member of that group of active and quick-witted men of science which the discoveries of Pasteur have gathered together for the development of his work in the big brick building in the Rue Dutot. A quick and skilful operator, and an investigator eager and absorbed in his chosen work, Dr. Calmette yet shows in his careful speech and manner, and in his appreciation of difficulties, the calm and patient method which, most marked in Pasteur himself, has extended to all the staff of the Institute. His interest in poisonous snakes arose from the many requests made to the Pasteur Institute from India for protection against the cobra, whose victims are numbered by tens of thousands a year. While his work was in progress he kept it strictly to himself; but now that it is practically complete, or so far complete as it can be made without actual cobra-bitten victims to save, he willingly furnishes the particulars of his experiments.

Hydrophobia is a disease whose development is usually so slow as to allow sufficient time for the victim to reach the Institute.



THE FER-DE-LANCE OF MARTINIQUE.

Cobra poison and snake poisons generally act quickly, the victims succumbing in a few hours. Consequently, the world will not begin to reap the benefit of Dr. Calmette's labors until all the drug-stores in the snake-ridden districts of Asia and America are equipped with his therapeutic serum and directions for applying it.

Thus far Dr. Calmette's remedial work has been confined to guinea pigs and rabbits, the two quadrupeds most sensitive to snake poison. To see a rabbit bitten by a big Indian cobra, the deadliest serpent known, skipping about alive and healthy three hours afterwards is, however, a proof that leaves no room for doubt that the remedy has been found. Dr. Calmette has now proceeded to a larger class of animals, dogs, and will go

from them to cattle. Though perfectly confident of his results on human beings, it is scarcely to be expected that human subjects are going to permit themselves to be bitten in the cause of science by the deadliest of snakes, and the first tests of his work on men and women will probably occur with actual sufferers in America or India, as the case may be.

THE DEADLIEST POISON ALMOST A WHOLESOME FOOD.

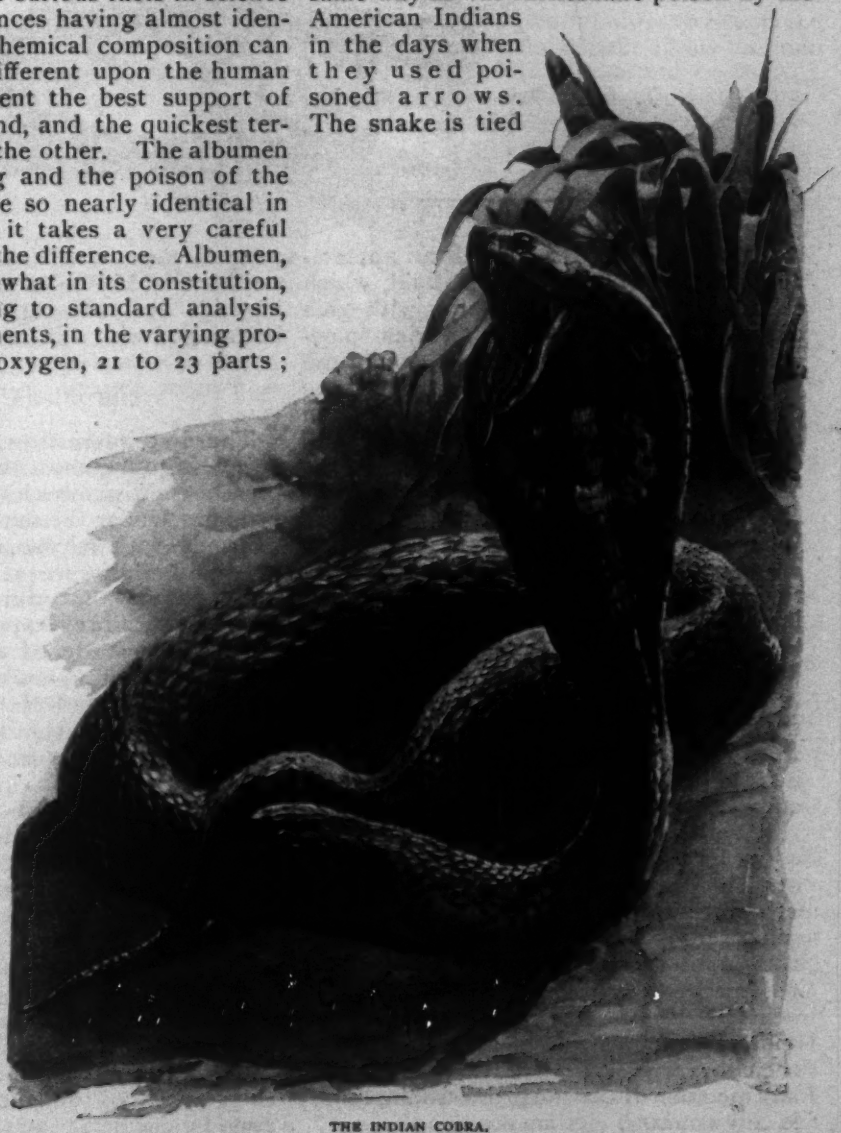
Dr. Calmette began his experiments with the most powerful of the reptile poisons, and made an analysis of the venom of the cobra.

One of the most curious facts in science is that two substances having almost identically the same chemical composition can have effects so different upon the human body as to represent the best support of life on the one hand, and the quickest termination of it on the other. The albumen or white of an egg and the poison of the cobra of India are so nearly identical in composition that it takes a very careful analysis to detect the difference. Albumen, which varies somewhat in its constitution, contains, according to standard analysis, the following elements, in the varying proportions named: oxygen, 21 to 23 parts; hydrogen, 7; nitrogen, 15 to 17; carbon, 51 to 54; and sulphur, 2 to 3. Cobra venom, according to the standard analysis, contains, in its solid or toxic elements, oxygen and sulphur, 21.33; carbon, 52; hydrogen, 7.05; and nitrogen, 18.20.

It was long supposed that the fatal principle of snake poison was an animal alkaloid, but late analyses have caused the abandonment of this idea. The fact which for a long time placed cobra poisoning beyond the reach of a remedy, was its very similarity to albumen, it being held that no specific which would neutralize or destroy it could be prevented from neutralizing and destroying the albumen of the blood as well. The poison contains two distinct albuminoids; one coagulable, and the other persistently liquid in form. The latter is the active and death-producing principle, and remains superior to a heat of one hundred and eighty degrees Fahrenheit, as well as to evaporation, the solid result retaining all the deadly properties of the liquid.

OBTAINING SNAKE POISON.

Cobra poison is obtained in much the same way as was rattlesnake poison by the American Indians in the days when they used poisoned arrows. The snake is tied



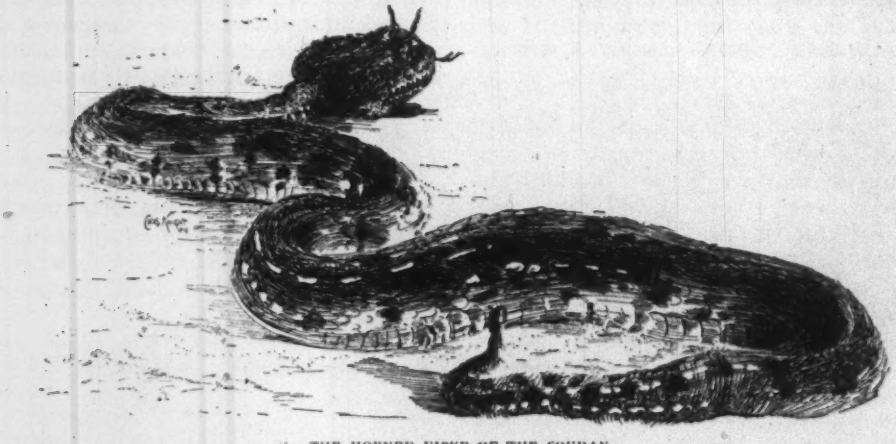
THE INDIAN COBRA.

down and irritated, in consequence of which it strikes at any object thrust at it. The American Indians used liver as the best absorbent, and the effectiveness of their stone-headed arrows was due to repeatedly plunging the heads into the liver and drying them.

The cobra is made to strike at a large leaf, and on each attack yields an appreciable quantity of the deadly fluid, which exudes from the poison glands with each dart. This, when collected, varies somewhat in hue, according to the season of the year. At times it is colorless, but more commonly has a pale yellow tinge. It can be kept for a long time in sealed bottles without deterioration, but exposed to the air it gradually undergoes some chemical change which destroys its toxic properties. When dried it becomes a pale yellow gum and retains its virulence indefinitely. In this, as in other respects, it is very similar to rattlesnake venom, which has been known in its dried form to produce the death of a man accidentally scratched with it after a period of fourteen years. In fact, the most gratifying result of Dr. Calmette's work is the clear evidence that, in conquering the poison of one snake, he has practically neutralized them all.

A rabbit inoculated against the Indian cobra has proved proof against the poison of the Egyptian asp, the horned viper of Northern Africa, and the Australian snakes. Whatever be the snake, its venom acts upon the blood in the same way as all other snake venoms, and is consequently neutralized in the same way; so that a sportsman who has been vaccinated against the cobra will have nothing to fear from any member of the poisonous snake family in any country.

The cobra is proof against its own poison, but a non-poisonous snake quickly succumbs to its bite. The venom is harmless if taken internally, the same being true of the rattlesnake venom. Nor is it fatal when brought in contact with a mucous surface, like the interior of the stomach or the eye. This fact developed interestingly in the course of an analysis when an assistant had some of the poison splashed into his eye. Though badly frightened, he escaped with a little surface irritation.



THE HORNED VIPER OF THE SOUDAN.

THE COBRA DEATH.

The first interesting point which arose in investigating the cobra poison was the presence of numberless bacteria in the venom. Under the microscope it literally swarmed with microbes, and to these, as in diphtheria, were at first ascribed its toxic powers. Careful investigation and experiment, however, proved this to be an error. The study of these bacteria, followed by their inoculation, proved them to be harmless; and the fact was established that they were foreign to the poison itself, and belonged only to the non-poisonous saliva.

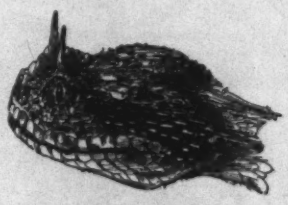
The cobra death was found, by the study of bitten animals under the microscope, to be due to a peculiar coagulation of the blood. The corpuscles lost their shape and agglomerated, and the blood was thus unable to do its work. This explained the paralysis of the leg or arm in a person bitten on these parts, and proved that the immediate cause of the fatal result was paralysis of the lungs through the stoppage of the circulation. Consequently, it early appeared that the remedial measure must be chemical and physiological, rather

than bacterial in character, and this led to chemical experiments of which the results are of the most valuable and practical kind.

HEAD OF A TIGER SNAKE.

HEAD OF A BLACK SNAKE.

SKULL OF A BLACK SNAKE.



HEAD OF THE HORNED VIPER OF THE SOUDAN.

POPULAR REMEDIES.

It was found by experiment that the hypochlorites of sodium and lime were chemicals which neutralized the poison by chemical action. Chloride of gold is equally of value, and ordinary chloride of lime gave perhaps the best results of all.

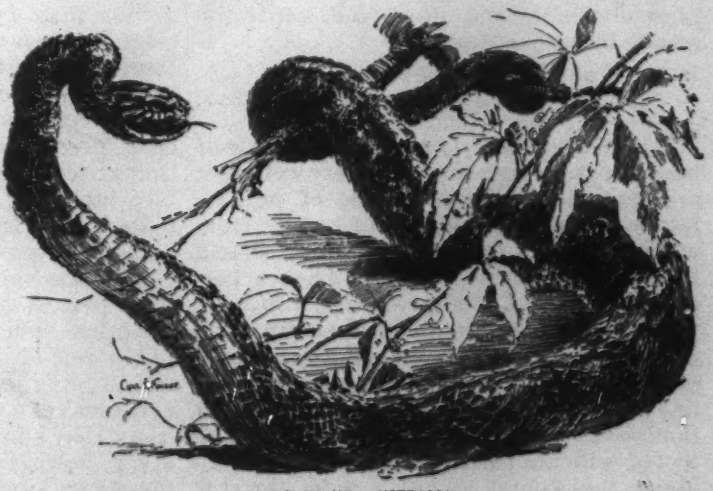
Dr. Calmette is quite certain that, in the absence of any other treatment, chloride of lime will be found an adequate remedy for rattlesnake bites; and if so, it is the first protection against the deadly ruler of the North American woods and fields which has ever been presented by science. The popular remedies for rattlesnake poisoning among wood-choppers and miners have been quick cauterization or amputation, of a finger, for instance, when possible.

Alcohol in the form of whiskey or brandy is supposed to have saved many persons, and has long been exceedingly popular as a precautionary measure among camping parties. The action of alcohol is purely stimulative, however, its effect being to augment the vital power of the body to a point at which it can resist the coagulation process mentioned, and carry the sufferer past the crisis. Upon the poison itself, alcohol has no chemical or neutralizing effect, and ranks in this regard as an aid to nature rather than a direct combatant of the deadly principle of the snake.

A REQUEST FOR A FEW AMERICAN "RATTLERS."

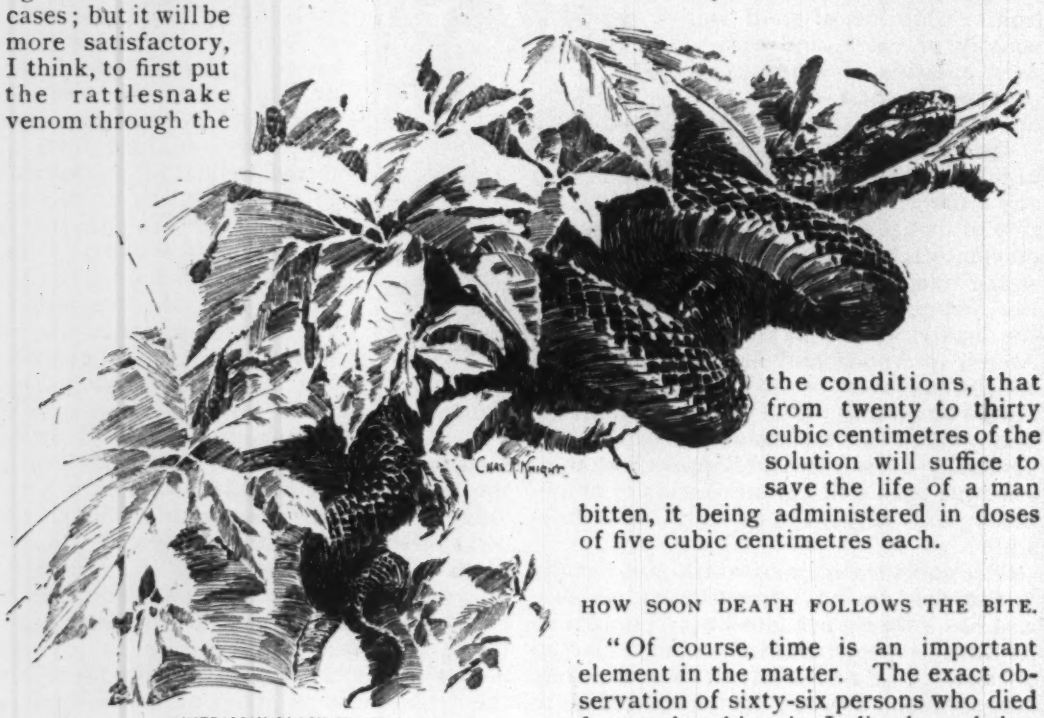
"I have," said Dr. Calmette, in reviewing his labors, "completed my investigations of the venom of the following serpents: the Indian cobra, the Egyptian viper, the asp of Cleopatra, the *fer-de-lance* of Martinique, the horned viper of the Soudan, the Gaboon viper, the banana snake of Indo-China, the tiger snake, the black snake of Australia, and the European viper. All these venoms present precisely the same chemical reactions, and any animal protected against one is equally protected against all the others. So, also, the therapeutic serum which I employ, serum originally obtained from a bitten animal or an animal artificially bitten or inoculated, has precisely the same effect therapeutically. I am consequently unable to doubt that the venom of the American rattlesnake is of the same general character, and will present the same results. All snake venom, as far as I have seen, can be vaccinated against as well with the venom of one snake as another, provided it be of a high degree of toxic power.

"I wish you would state that I am exceedingly anxious to obtain the venom of all poisonous serpents not yet studied, or the snakes themselves if any one will send them, and my greatest desire at present is for some American rattlesnakes or their venom, and any other poisonous American snakes which I have not hitherto



TIGER SNAKE, AUSTRALIA.

been fortunate enough to receive. Possibly the publication of these facts may induce some person in America to supply me, as I know the question is one which must interest large numbers of people in the United States. I will undertake, in return, to supply any persons who may desire it with a quantity of therapeutic serum for persons bitten by rattlesnakes, together with full instructions concerning its use. I could send the serum I now have, and am reasonably confident that it will work as well against the rattlesnake as in all the other cases; but it will be more satisfactory, I think, to first put the rattlesnake venom through the same course as the others, and verify the results in my laboratory.



AUSTRALIAN BLACK SNAKE.

HOW TO USE CHLORIDE OF LIME.

"In the meantime, I think that chloride of lime, in case of necessity, will very well meet all requirements in the cases of persons bitten. The chloride should be free from absorbed water, and, when used, should in all cases be freshly taken from a hermetically sealed bottle. One part of it by weight should be dissolved in eleven parts of boiling water, and the solution should never be made until it is about to be used, as I have found that the therapeutic power diminishes by keeping. This should be injected subcutaneously with a trephine all about the wound, and also under the skin of the abdomen, that it may enter the circulation as quickly as possible. No ligature about the part bitten is necessary.

"I have not yet determined the amount necessary to be used upon a human being, because I have had no opportunity of making tests. In operating with rabbits I have found chloride of lime fully effective up to fifty minutes with animals that would have died in two hours, as shown by the fact that those that were not treated, all having received the same amount of venom; did die in that period. I estimate, from all the conditions, that from twenty to thirty cubic centimetres of the solution will suffice to save the life of a man bitten, it being administered in doses of five cubic centimetres each.

HOW SOON DEATH FOLLOWS THE BITE.

"Of course, time is an important element in the matter. The exact observation of sixty-six persons who died from cobra bites in India showed that a little over twenty-two per cent. died in less than two hours; twenty-four per cent. between two and six hours; twenty-three per cent. between six and twelve hours; nine per cent. between twelve and twenty-four hours; and twenty-one per cent. after twenty-four hours. This variation arises from the varying severity of the bite, including the amount of venom inoculated, and the varying strength of the persons bitten.

"As the cobra venom is even deadlier than that of the rattlesnake, and as it is doubtless under the control, like the others, of chloride of lime, I do not see why at least seventy-five per cent. of persons bitten by rattlesnakes could not be saved, if this fact was widely known and utilized. You understand, however, that I am presenting this merely as a temporary expedient, probably

effective in cases of necessity, until I can make the proper study of the rattlesnake and furnish the proper serum and the exact facts in the case. I quite believe, however, in its practical utility even now."

THE HUMBLE SUBJECTS OF DR. CALMETTE'S EXPERIMENTS.

The Pasteur Institute presents in its animal houses, located in the large yard back of the building, a strange collection of rabbits, guinea pigs, fowls, and dogs in cages, which, considering that nearly all are under treatment for some kind of dreadful poison, seem to be in a remarkably healthy and cheerful state of mind. The happy freedom from care which is said by those who know to prevail in a Keeley Home is quite the rule in these bacterial hospitals.

Dr. Calmette led the way to his particular section of cages, in which a large number of rabbits and guinea pigs were vitally generating remedies for the benefit of the human race, and enjoying life quite perfectly in the meantime. In the starting experiments, the rabbit or guinea pig was first chloroformed, and then bitten by an obliging serpent, in the cause of science. This made its circulating system a source of the therapeutic serum, itself deadly in any large quantity, which was used in vaccinating other rabbits, and the course of experiments gradually established the amount of inoculation necessary to make other rabbits proof against the serum or the pure venom itself.

HOW THE EXPERIMENTS ARE CONDUCTED.

"I have taken a lot of rabbits," said the Doctor, "and inoculated them with one milligramme each of pure venom, the amount being several times more than a mortal dose. These I have treated with serum of varying strength, the lowest being from a rabbit inoculated with four milligrammes, and the highest from a rabbit inoculated with twenty-six milligrammes of pure venom. Four milligrammes of venom is a mortal dose for ten pounds of rabbits, and twenty-six milligrammes would suffice to cause death among sixty. It gave me, consequently, a very powerful serum. The longer the time after the inoculation, the stronger was the grade of serum used upon the poisoned subjects. Thus, after twenty minutes, I successfully arrested the action of the poison with the weakest serum, while the strongest saved the rabbit after the lapse of an hour and a half. Those not treated therapeutically died in two hours.

"I find, generally speaking, about five cubic centimetres of the serum from one milligramme are necessary to make the animal proof against one milligramme of pure venom. I also find that I can use three distinct specifics in vaccinating a rabbit, and, by all analogy, a man, against the bite of the most poisonous snake, or as an antidote after they have been bitten. These are, first, the serum from an envenomed animal by itself; secondly, this serum mixed with chloride of gold or the hypochlorite of sodium or of lime; and, thirdly, either of these chemicals, or, preferably, chloride of lime, used by itself without serum.

"The chloride of lime works very well, and in its use I have never found in the rabbit those signs of intoxication or paraly-

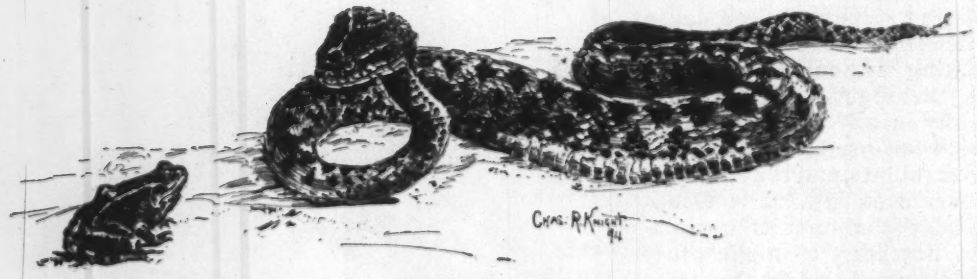
THE BANANA SNAKE.

sis which the increasing effect of the poison superinduces. Of course, the process of vaccination for immunity against the bite is progressive, as in the hydrophobia treatment. We begin by injecting the standard dose of a very weak solution of serum or chloride. This is increased in strength on each subsequent day, and the augmentation of the dose is so graded that, as in the hydrophobia treatment, no ill effects are produced upon the system. The minimum of time necessary is four days. By inoculating a rabbit with fresh serum from the bite of the Egyptian asp, I have in four days immunified it so completely that the direct bite of the asp itself did it no perceptible injury.

"I have not inoculated any men against snake bites as yet. That is a matter for the future. I must of course determine how long the immunity obtained by inoculation endures in the system, before venturing to make any predictions in that direction. My sole aim thus far has been to devise some means of saving persons already bitten, or in danger of being bitten, and I have no reason to doubt the value of my results; and I hope and believe that the terrible death-roll of twenty-two thousand persons per annum in India killed by the cobra may be appreciably diminished when we get to work there."

"What about scorpions, tarantulas, and centipedes?"

"I have not undertaken them as yet, but I see no reason why their venom, which is less important than that of the snakes, should not yield to the same treatment. I shall be grateful for any samples of them, and I wish you would be sure and let the American people know how greatly I desire some rattlesnakes or their venom. Kindly tell the people that my discoveries are entirely at their service, and that I will do all that is in my power to make them as great a public benefit in America as possible."



THE EUROPEAN VIPER.